

Central Montana Interoperable Communications Consortium

Interoperable Communications Plan Needs Assessment

Submitted By:

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IT

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5 Detailed Results

This section contains detailed findings from:

- Questionnaires
- Site Surveys
- Coverage Maps
- Jurisdiction Meetings
- Project Research
- Design Strategy
- Preliminary Design

5.1 Stakeholder Needs & Issues – Consortium-Wide

The next two sections contain pie charts depicting the results from the following two questions in the Jurisdiction Stakeholder Questionnaire:

List, in priority order, up to five (5) communications improvements needed from initial dispatch to call completion.

List, in priority order, up to five (5) factors that will be critical to future radio system in your jurisdiction, city, or area of jurisdiction.

The results from each jurisdiction were tabulated, with items given scores as follows:

An item listed as #1 received five points.
An item listed as #2 received four points.
An item listed as #3 received three points.
An item listed as #4 received two points.
An item listed as #5 received one point.

This point system allowed for weight to be given to those items higher in priority.

5.1.1 Communication Improvement Priorities – Consortium Wide

List, in priority order, up to five (5) communications improvements needed from initial dispatch to call completion.

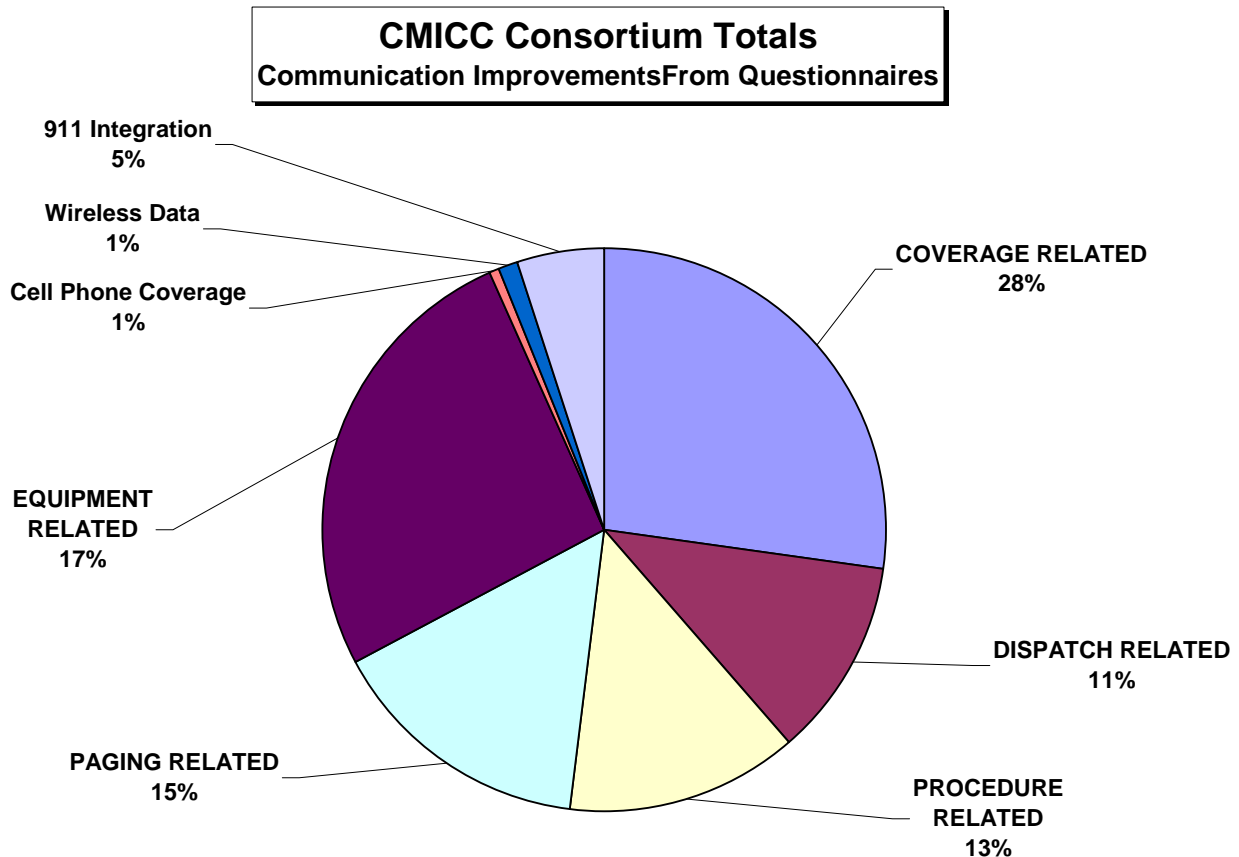


Figure 2 – Communications Improvements, CMICC Total

Analysis

- Coverage is a factor for nearly everyone in the consortium. There are locations in each jurisdiction where it is difficult to communicate with repeaters back to dispatch or to other responders.
- Business practices and procedures, of which dispatch is a part, are high on the list of what needs to be addressed. These areas do not require extensive funding to improve.
- Equipment is still a big issue for many, even without taking P25 into consideration. Several agencies either have no radios at all, or are functioning with radios that are 20 years old or more.

- Paging related improvements were not high on the list of concerns in meetings, but did show significant weight when the questionnaires were tabulated. This area will need further investigation and potential solutions evaluated.
- These findings are all consistent with findings in other consortia around the state. That indicates that there is a common need, which can be addressed through a statewide system. It will be important to keep the individual needs of local agencies in mind as the project progresses into the formal design process. This is one of the fundamental points in the statewide strategy adopted by the Project Directors Board.

5.1.2 Factors for Success – Consortium Wide

List, in priority order, up to five (5) factors that will be critical to future radio system in your jurisdiction, city, or area of jurisdiction.

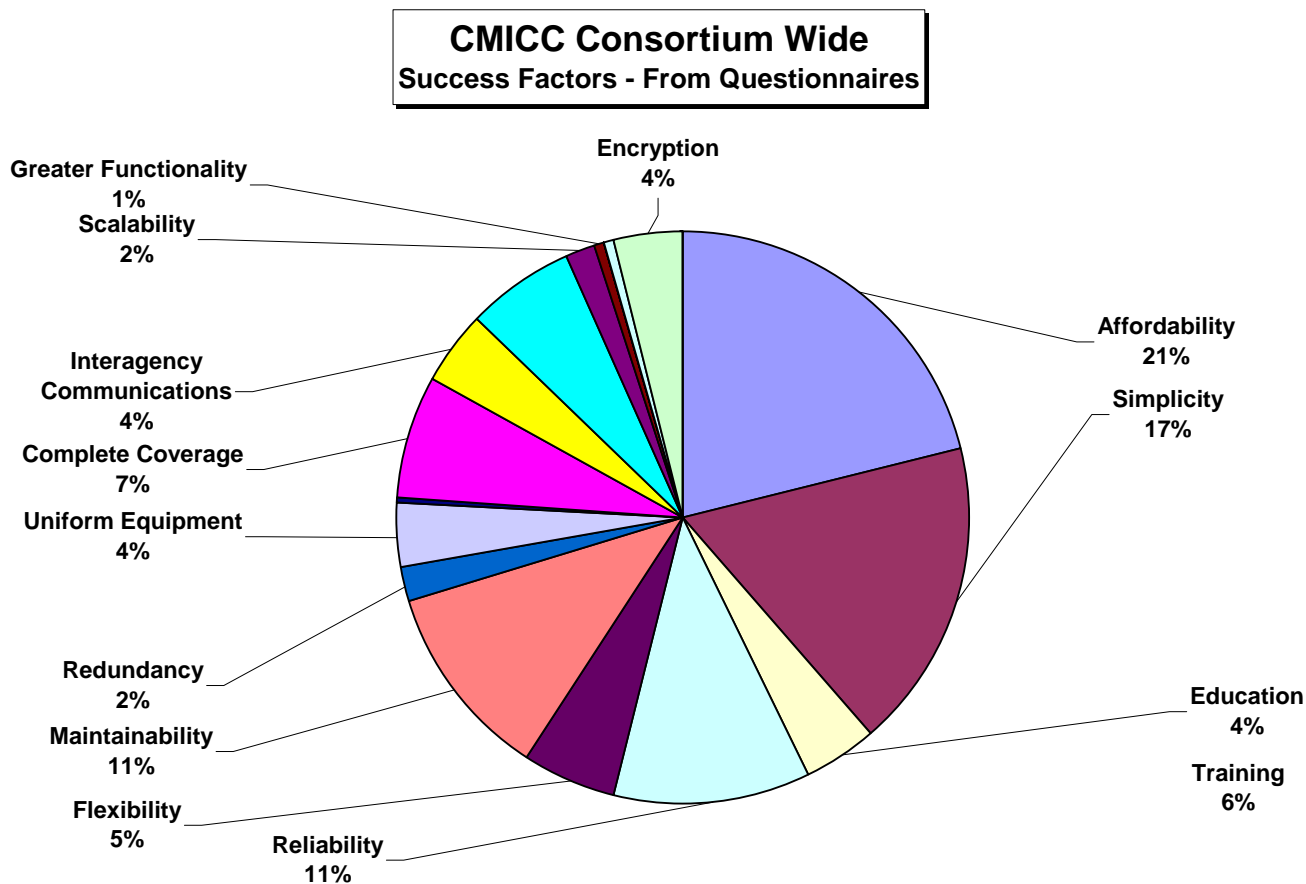


Figure 3 – Success Factors, CMICC Total

Analysis

- Funding was one of the most discussed points in meetings throughout the consortium. It was also shown to be important based on feedback in the questionnaires. Not all of the counties and agencies in the CMICC have sufficient funding to purchase the new equipment that they need.
- Things need to be simple. Too much complexity and people will either not use it, or will forget how to use it. Many emergency responders are volunteers and do not have extensive training with radios or use them occasionally. In emergencies, it is important that radio communication be as simple as possible. The more pressure on a person, the more they rely on reaction. Many times, they do not have time to think through a scenario. Training on a new system will be a high priority before and during deployment as is indicated by a 12% response rating.
- The equipment needs to be reliable and easy to maintain. Again, emergency response requires that radio communications be there when it is needed, and many times that is during extremes. Durability is part of this category as well.
- There is some overlap in items on this list and on the Communications Improvements list. This further indicates how important coverage improvements, new equipment and training are to the stakeholders involved in this project.
- These results are consistent with results seen in other consortia around the state.

5.1.3 Other Needs & Issues

This section contains those needs and issues, which are widespread throughout the consortium but are not included in the sections above.

- Dispatch is depended upon for support on all calls for service; however, agencies also use the same channel for tactical conversations, which overloads Dispatch with non-essential traffic. Because a dispatch center must monitor non-essential radio traffic, this leads to complaints that “Dispatch” is not answering the radio.
- Inclusion of non-jurisdiction stakeholders in all counties: During the course of the project, various non-jurisdiction stakeholders were invited to meetings. These persons expressed thanks for being included and asked that they not be forgotten during the subsequent phases of the project.
- Training: During the process of gathering information from the counties, it became obvious that a large number of those who were required to use radios needed some training on how to use them more effectively. Sometimes this is simply a result of the fact that they do not use them very often, as in the case of a volunteer.
- Communication systems must be changed to Narrowband by 2013. However, for agencies that work with the forest service, the time is now for upgrades as the forest service has already started deploying narrowband equipment at various sites around the state, as well as

field units. In order for fire or law enforcement agencies to effectively communicate with the forest service, they need to look at narrow banding now.

- Interoperable communication with the Air Force is important for the entire consortium. With the base in Great Falls and missile silos throughout the consortium, there is a strong need to have good communication between local agencies and the Air Force.
- Cellular telephones clearly play an important part in routine, emergency, and disaster response. It is not clear if those who noted their reliance on cell phones realize that cellular service may not be available to them during disaster response. It seems likely that a general loss of cell service in an area could have a significant impact on the provision of public safety services. Emergency responders should develop plans to lessen their reliance on cellular phone services.
- Pagers and paging systems were consistently listed in the questionnaires by every county and the tribe. This is clearly a signal that improvements are necessary to get the first responders connected to dispatch. As this needs assessment was focused on radio voice communication, this area was not researched in depth. It needs to be addressed in future phases of the project.

5.1.4 Stakeholder Concerns

Some of the concerns documented in meetings include the following points.

- Law enforcement and fire disciplines need portable coverage in population centers and in building coverage.
- Systems must be able to operate effectively in failure mode and that any new design incorporates failover capabilities.
- Costs for a new system were always discussed.
- Concerns were raised regarding maintenance costs for a new system, particularly with the microwave backbone and trunked portions of the system.
- Concern that the state would dictate how a new system would be developed and controlled. Local jurisdictions do not want to lose things like control over dispatch or the ability to control their communications infrastructure.
- Nearly all meetings had discussions where users were concerned with a system that would become too complex and difficult to use.
- The fire community has a very strong need to operate in simplex mode.
- Many of the needs assessment meetings included extensive discussion regarding concerns with technology. In most cases these concerns were based on hearsay, but are still valid points. As this project moves forward, it will be important to make sure that specifications and standards are documented and that vendors are held accountable for their equipment.

5.2 Stakeholder Needs & Issues by Jurisdiction

This section of the document contains the results from the information-gathering process within each jurisdiction. In some of the meetings held in individual counties, there were issues brought up which are not consortium issues, or issues that can or should be addressed at the Project Directors Board level. These concerns have all been documented in the meeting minutes from those meetings (which are available on the document CD), but they may not be repeated or documented in this section. The concentration in this document was on items relevant to and addressable by the consortium.

5.2.1 Cascade County

County Representative:	Vince Kolar
Number Of County Stakeholder Questionnaires Returned:	10
Number Of County Agencies Represented By Questionnaires:	10

5.2.1.1 Cascade County Concerns or Issues

1. Communications Improvements

The following pie chart depicts the communications improvements desired by the responding stakeholders in this county:

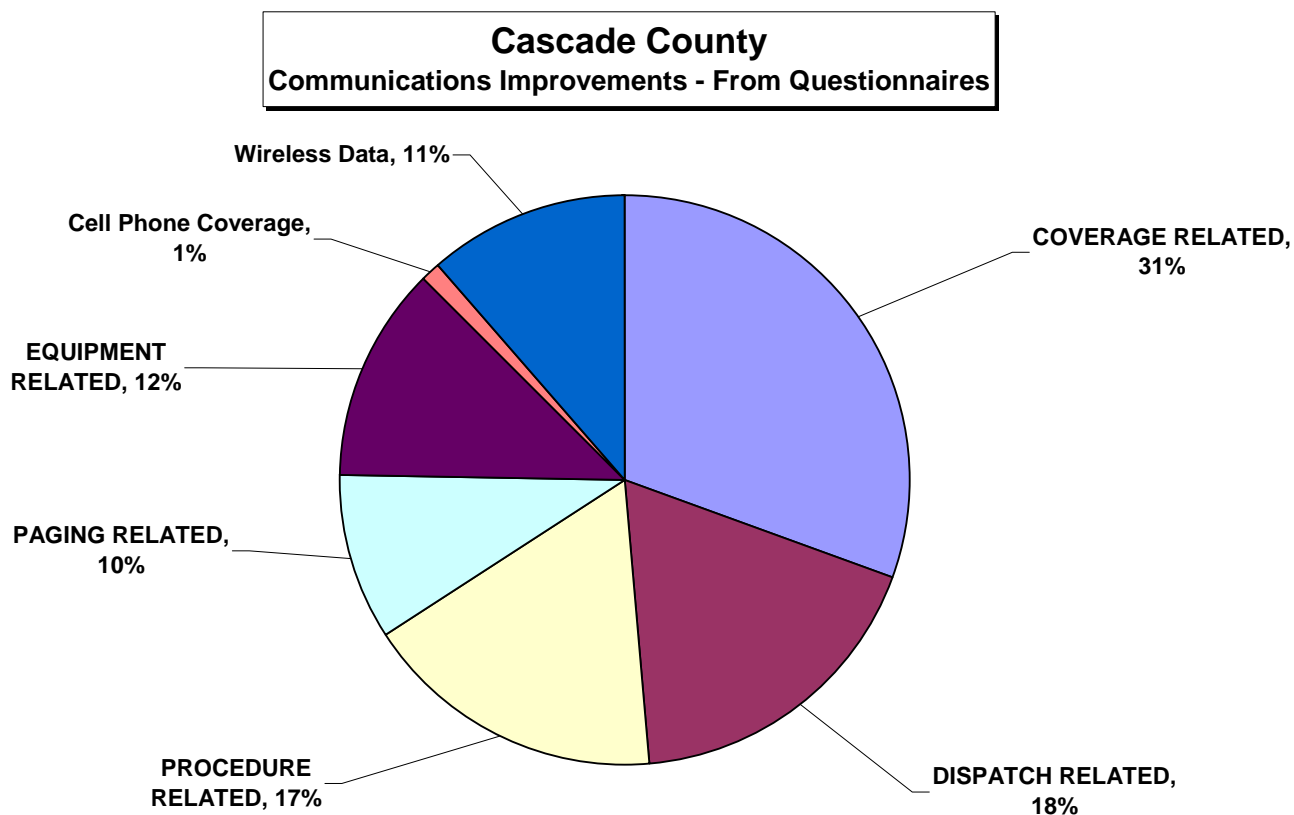


Figure 4 – Communications Improvements, Cascade County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five communications improvements they would like to see. Those items ranked higher were given a higher point value than those ranked lower. A percentage was then calculated. If the chart contains less than five “wedges,” this means the stakeholders did not list the full five possible items.

2. Success Factors

The following chart depicts the success factors considered critical by the responding stakeholders in this county in order for the CMICC radio project to be successful.

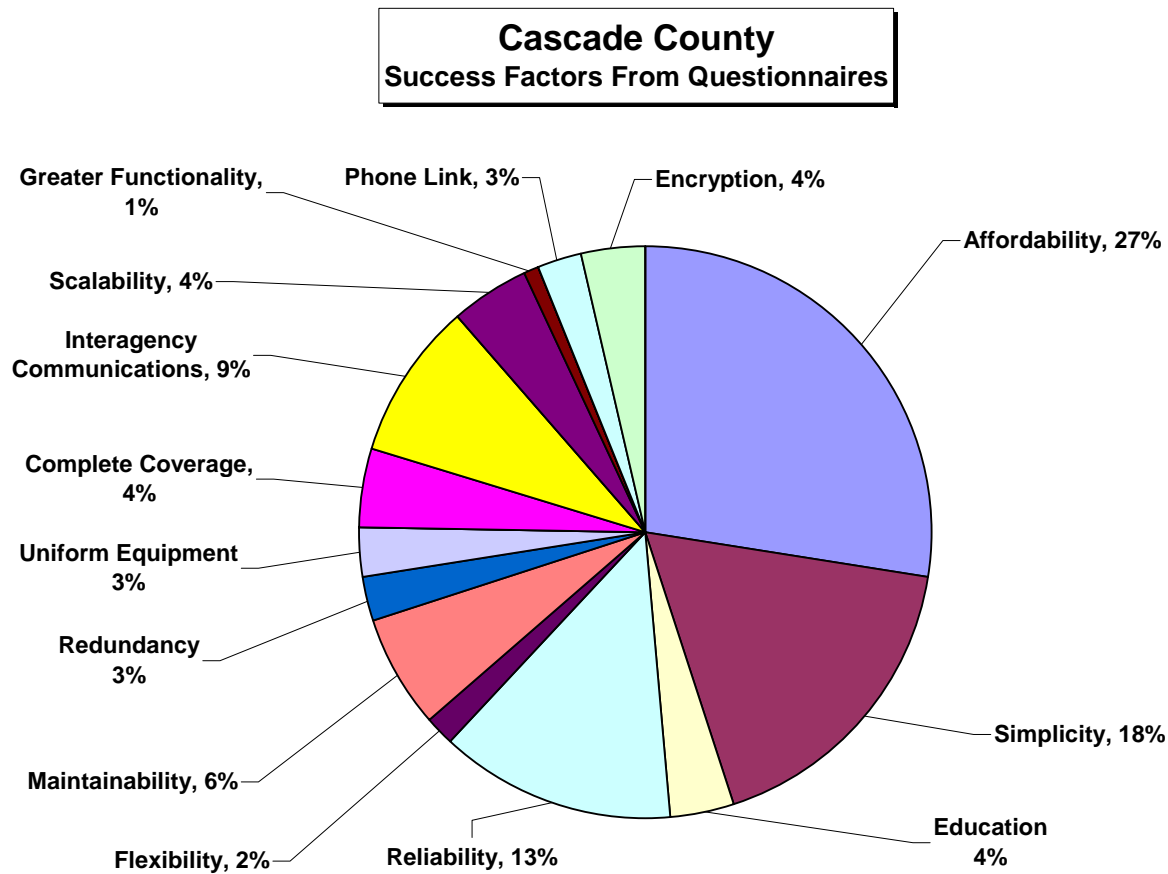


Figure 5 – Critical Success Factors, Cascade County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five factors they felt were most necessary for the CMICC radio project to be successful. Those items ranked higher were given a higher point value than those ranked lower, in order to give higher-ranked items more weight. A percentage for each item was then calculated. If the chart contains less than five items ("wedges"), this indicates the stakeholders did not list the full five possible items.

Some of the same items often appear in both the communications improvements chart and the critical success factors chart. This indicates that these items are very important to the stakeholders.

5.2.1.2 Cascade County Agency Interactions

Cascade County		Cascade County Sheriff	Cascade County DES	Ambulance Mercy Flight	Great Falls Fire and Rescue	Great Falls Police	Cascade County Weed and Mos. Dist.	Sand Coulee VFD	Vaughn VFD	Monarch Fire	Gore Hill Fire	Meagher County Fire	Meagher County Sheriff	Judith Basin County EMS	Forest Service	DNRC	BIA	MHP	US Marshall	Wrecker Services	US Customs	Border Patrol	Dept. of Transportation
Key:																							
E - Emergency Basis Only																							
A - Administrative & Emergency Basis																							
Cascade County Sheriff																							
Cascade County DES	E																						
Ambulance Mercy Flight	E	E																					
Great Falls Fire and Rescue	E	E	E																				
Great Falls Police	A	E	E	E																			
Cascade County Road Dept.	E	E	E	E	E																		
Cascade County Weed and Mos. Dist.	E	E	E	E	E	E																	
Sand Coulee VFD	E	E	E	E	E	E	E																
Vaughn VFD	E	E	E	E	E	E	E																
Monarch Fire	E	E	E	E	E	E	E	E	E														
Gore Hill Fire	E	E	E	E	E	E	E	E	E	E													
Meagher County Fire	E	E	E	E	E	E	E	E	E	E	E												
Meagher County Sheriff	E	E	E	E	E	E	E	E	E	E	E	E											
Meagher County EMS	E	E	E	E	E	E	E	E	E	E	E	E	E										
Judith Basin County Fire	E	E	E	E	E	E	E	E	E	E	E	E	E	E									
Forest Service	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E								
DNRC	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E							
BIA	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E						
MHP	A	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E					
US Marshall	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E				
Wrecker Services	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
US Customs	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E		
Border Patrol	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
Dept. of Transportation	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	

Figure 6 – Agency Interactions, Cascade County

5.2.1.3 Analysis

The most significant need in Cascade County is the conversion of the Great Falls City Police Department from UHF to VHF. This difference in frequency range has limited interoperable communication for many years. The initial steps towards conversion have been started and GFPD is committed to the migration. GFPD plans to transition with portables first, and has 49 XTS5000 portable radios ordered. These have been funded through '04 ODP grant funds to start the process. Dispatch upgrades are also included in the upgrade plan. The plan involves installation before the end of November 2005. GFPD has 82 officers and 55 vehicles that will require radios.

Cascade County also has Malmstrom Air Force Base located in Great Falls. This presents a special interoperable communications challenge. Malmstrom operates a Motorola trunked system for their communications infrastructure and neither side has the other's frequencies programmed for interoperability. Malmstrom officials have participated in the needs assessment meetings and are very interested in solving the communications challenges. Following the implementation of the trunked system in Cascade County, it will be a matter of connecting the two trunked systems together. In the mean time, it would be beneficial to both sides to establish a memorandum of understanding whereby Malmstrom dispatch can connect to the Great Falls Police dispatch for communications through a shared frequency.

Most of the repeater sites in Cascade County need significant upgrades. With years of operating on low to no budgets, the sites are facing high risk due to lightning or other weather related breakdowns. Grounding, building structures and towers all need to be upgraded on several sites. Please see section 5.8 Preliminary Design for details on each site.

5.2.2 Chippewa Cree Tribe

Tribal Representative:	Donita Demontiney
Number Of Tribal Stakeholder Questionnaires Returned:	2
Number Of Tribal Agencies Represented By Questionnaires:	2

5.2.2.1 Chippewa Cree Tribe Concerns or Issues

1. Communications Improvements

The following pie chart depicts the communications improvements desired by the responding stakeholders in this jurisdiction:

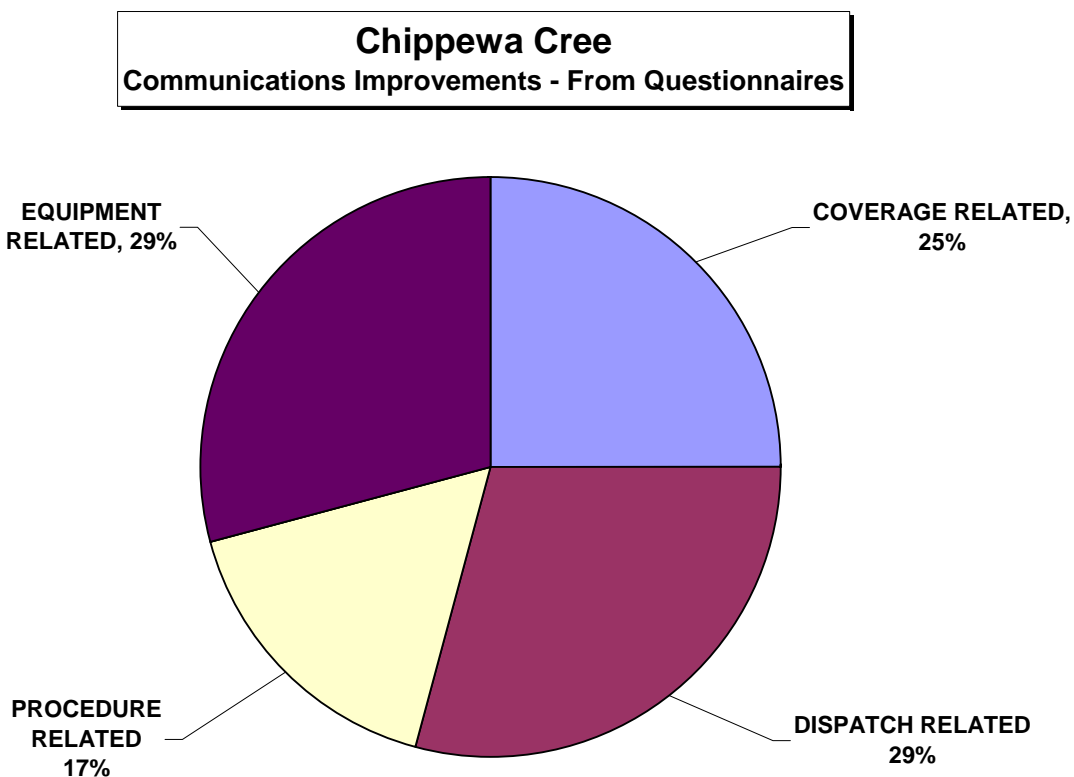


Figure 7 – Communications Improvements, Chippewa Cree Tribe

How to read this chart:

Stakeholders were asked to list, in priority order, the top five communications improvements they would like to see. Those items ranked higher were given a higher point value than those ranked lower. A percentage was then calculated. If the chart contains less than five “wedges,” this means the stakeholders did not list the full five possible items.

2. Success Factors

The following chart depicts the success factors considered critical by the responding stakeholders in this jurisdiction in order for the CMICC radio project to be successful.

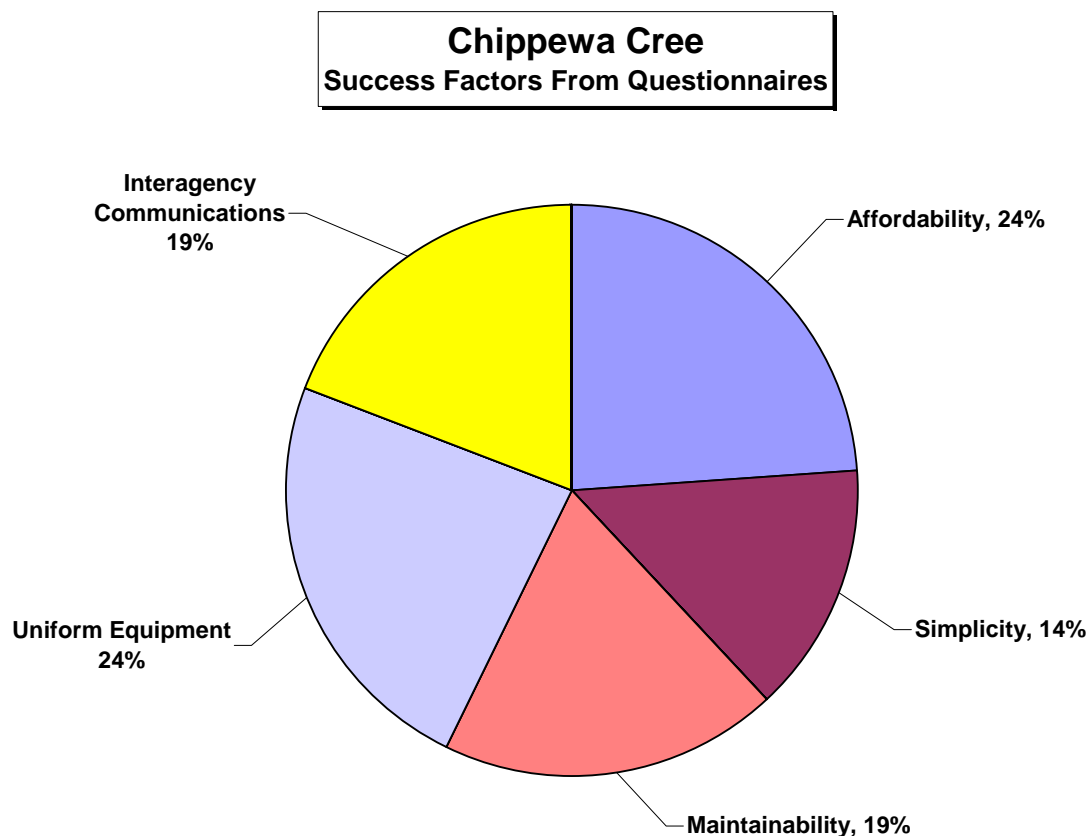


Figure 8 – Critical Success Factors, Chippewa Cree Tribe

How to read this chart:

Stakeholders were asked to list, in priority order, the top five factors they felt were most necessary for the CMICC radio project to be successful. Those items ranked higher were given a higher point value than those ranked lower, in order to give higher-ranked items more weight. A percentage for each item was then calculated. If the chart contains less than five items (“wedges”), this indicates the stakeholders did not list the full five possible items.

Some of the same items often appear in both the communications improvements chart and the critical success factors chart. This indicates that these items are very important to the stakeholders.

5.2.2.2 Chippewa Cree Tribe Agency Interactions

Chippewa Cree								
Key: E - Emergency Basis Only A - Administrative & Emergency Basis								
	Tribal Law Enforcement	TERC	Fire Agencies	DNRC	Rocky Boy Clinic	Road Department	DES	Schools
Tribal Law Enforcement								
TERC	E							
Fire Agencies	E	E						
DNRC	E	E	E					
Rocky Boy Clinic	E	E	E	E				
Road Department	E	E	E	E	E			
DES	A	E	A	E	A	E		
Schools	E	E	E	E	E	A	E	
EMS	E	E	E	E	E	E	E	E

Figure 9 – Agency Interactions, Chippewa Cree Tribe

5.2.3 Analysis

The data in both graphs supports what was heard in the meetings with the Chippewa Cree, but it is not necessarily complete in regard to their needs. In meetings and reading through the questionnaires, it was very clear that what they felt they needed most was equipment. Both from a repeater and repeated channels perspective and from an equipment in the hands of user's perspective. Currently, much of their communication is through simplex operation.

The tribe operates, as many small communities do, with significant overlap between agencies. Many responders wear multiple hats in that they may be involved with several agencies. These small town needs are similar to other small towns in the consortium and around the state of Montana. Keeping a system simple will help them communicate more effectively.

Dispatch is not a formal center, it is handled more by committee or as is stated in one questionnaire: "Dispatch is handled by whoever is in the room who can answer the radio." Better equipment and formalized procedures will help the dispatch concerns for the Chippewa Cree.

5.2.4 Chouteau County

County Representative:	Linda Williams
Number Of County Stakeholder Questionnaires Returned:	1
Number Of County Agencies Represented By Questionnaires:	12

5.2.4.1 Chouteau County Concerns or Issues

1. Communications Improvements

The following pie chart depicts the communications improvements desired by the responding stakeholders in this county:

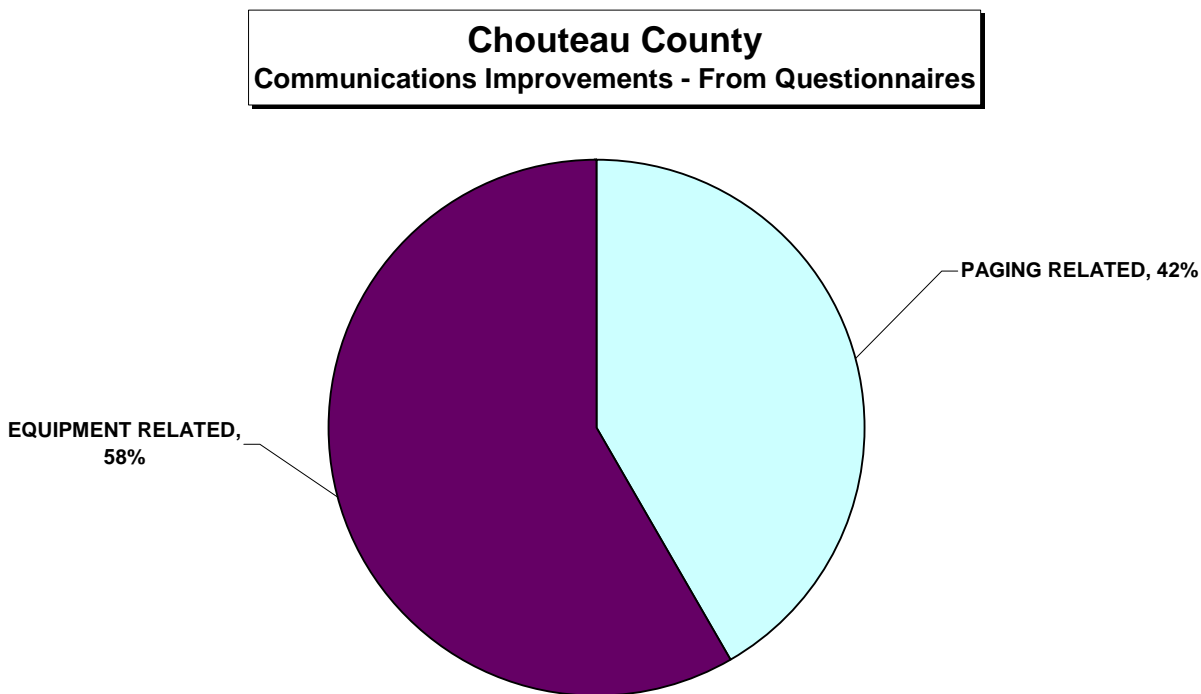


Figure 10 – Communications Improvements, Chouteau County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five communications improvements they would like to see. Those items ranked higher were given a higher point value than those ranked lower. A percentage was then calculated. If the chart contains less than five “wedges,” this means the stakeholders did not list the full five possible items.

2. Success Factors

The following chart depicts the success factors considered critical by the responding stakeholders in this county in order for the CMICC radio project to be successful.

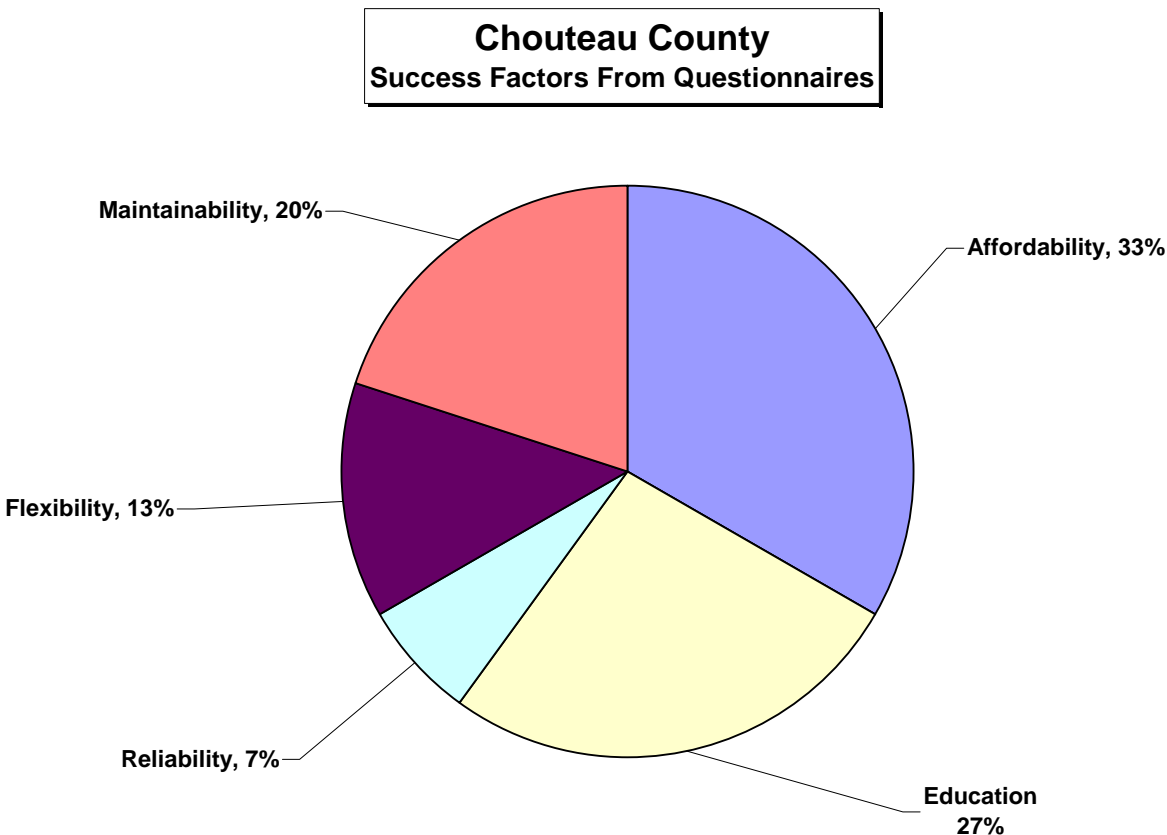


Figure 11 – Critical Success Factors, Chouteau County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five factors they felt were most necessary for the CMICC radio project to be successful. Those items ranked higher were given a higher point value than those ranked lower, in order to give higher-ranked items more weight. A percentage for each item was then calculated. If the chart contains less than five items ("wedges"), this indicates the stakeholders did not list the full five possible items.

Some of the same items often appear in both the communications improvements chart and the critical success factors chart. This indicates that these items are very important to the stakeholders.

5.2.4.2 Chouteau County Agency Interactions

Chouteau County															
Key: E - Emergency Basis Only A - Administrative & Emergency Basis															
		Chouteau County Sheriff													
		Fort Benton Police	A												
		Chouteau County Fire Departments	E	E											
		Chouteau County EMS	E	E	E										
		Chouteau County S&R	E	E	E	E									
		Hospital	E	E	E	E	E								
		911 Center	E	E	E	E	E	E							
		Chouteau County Road Dept.	E	E	E	E	E	E	E						
		Chouteau County Weed Dist.	E	E	E	E	E	E	E	E					
		Chouteau County Public Health	E	E	E	E	E	E	E	E	E				
		MHP	E	E	E	E	E	E	E	E	E	E			
		BLM	E	E	E	E	E	E	E	E	E	E	E		
		Livestock Inspector	E	E	E	E	E	E	E	E	E	E	E	E	
		Fish and Game	E	E	E	E	E	E	E	E	E	E	E	E	

Figure 12 – Agency Interactions, Chouteau County

5.2.5 Analysis

Chouteau County is in better shape than most in the consortium. They have built two of the best sites in the area on Centennial and Highwood Baldy. They have a formal upgrade plan for the county and are well into the execution of that plan.

What they have identified as a need is updated equipment for the city of Fort Benton Police Department. That agency has not had the funding to upgrade and needs radios for the agency. Addition of new portable radio units and pagers will be one of the next priorities for the county.

Even though Chouteau County has great coverage in most of the county, there are still areas in the coulees and river bottom where they experience coverage outages. As these are relatively remote areas, the solution may be that through the trunked system, additional coverage may be available in those areas from sites in other parts of the region. Testing would be helpful to determine if there is radio coverage coming from other sites such as those located in the Northern Tier.

The other concern that was voiced in meetings with Chouteau County was that they are concerned that this new system will be too complex, too costly and be forced upon them by the state.

5.2.6 Fergus County

County Representative:	Karen Marks
Number Of County Stakeholder Questionnaires Returned:	11
Number Of County Agencies Represented By Questionnaires:	11

5.2.6.1 Fergus County Concerns or Issues

1. Communications Improvements

The following pie chart depicts the communications improvements desired by the responding stakeholders in this county:

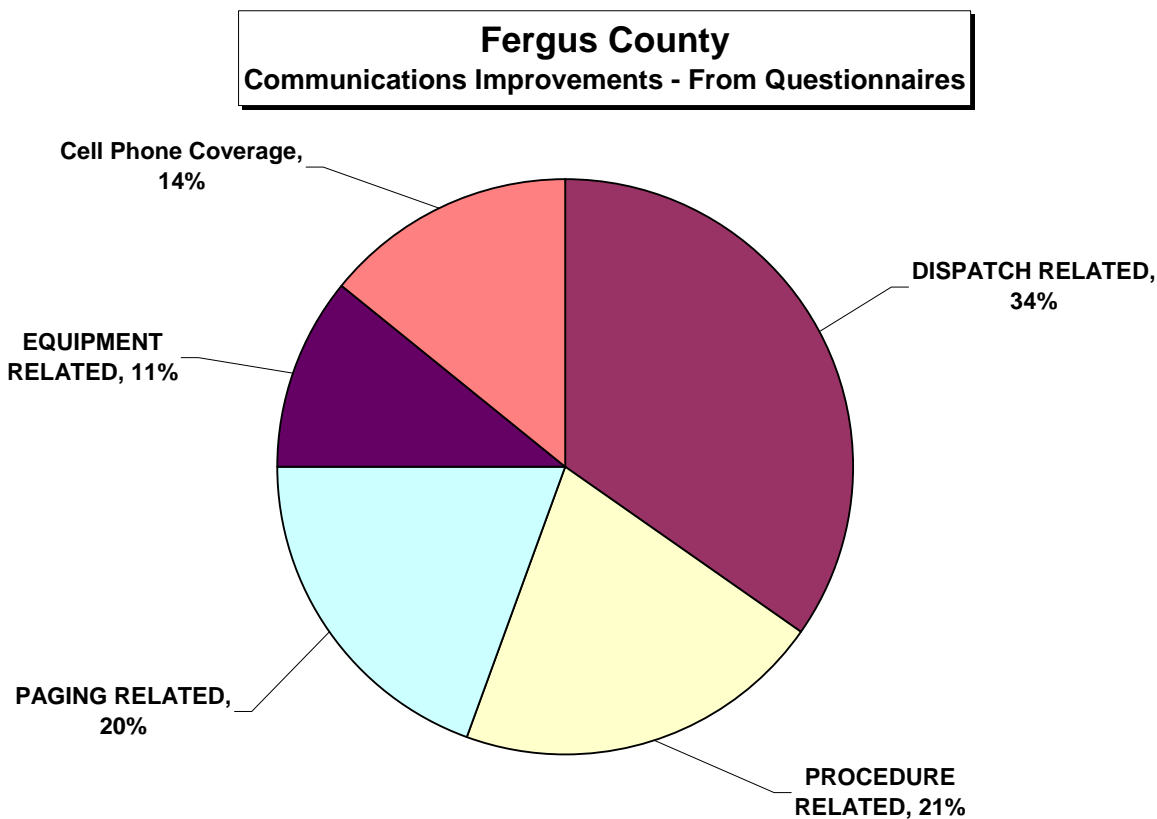


Figure 13 – Communications Improvements, Fergus County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five communications improvements they would like to see. Those items ranked higher were given a higher point value than those ranked lower. A percentage was then

calculated. If the chart contains less than five “wedges,” this means the stakeholders did not list the full five possible items.

2. Success Factors

The following chart depicts the success factors considered critical by the responding stakeholders in this county in order for the CMICC radio project to be successful.

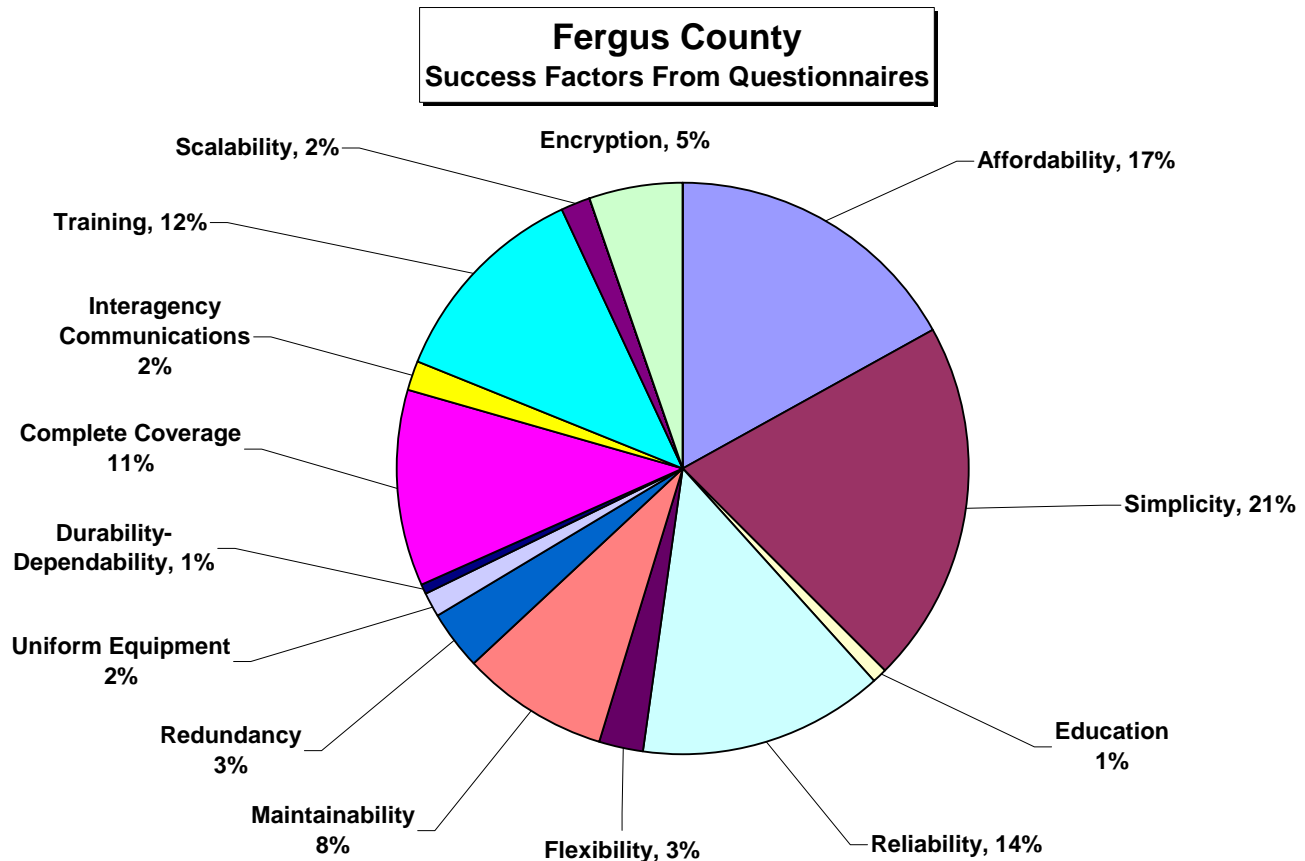


Figure 14 – Critical Success Factors, Fergus County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five factors they felt were most necessary for the CMICC radio project to be successful. Those items ranked higher were given a higher point value than those ranked lower, in order to give higher-ranked items more weight. A percentage for each item was then calculated. If the chart contains less than five items (“wedges”), this indicates the stakeholders did not list the full five possible items.

Some of the same items often appear in both the communications improvements chart and the critical success factors chart. This indicates that these items are very important to the stakeholders.

5.2.6.2 Fergus County Agency Interactions

Fergus County	Lewistown Police Dept	Fergus County Sheriff	Fish Wildlife & Parks	Grass Range Ambulance	Fergus County DES	Beaver Creek/Cottonwood Crk VFD	Hilger Fire	Moore Fire	Border Patrol	Blaine County Sheriff	Meagher County Sheriff	Wheatland County Sheriff	Park County Sheriff	Gallatin County Sheriff	Central Montana Medical Cntr EMS	Judith Basin County Sheriff	Petroleum County Sheriff	MHP	BLM	US Forest Service	FBI	Montana Dept. Transportation	Fergus S&R	Judith Basin S&R	Petroleum S&R	CMR Wildlife Refuge	Hobson Fire	Denton Fire	Cheadle Fire	Grass Range Fire	Grass Range EMS	Winnett Fire	Winnett EMS	Lewistown Fire and Rescue	DNRC	Heath RFD	Roy VFD		
Lewistown Police Dept.																																							
Fergus County Sheriff	A																																						
Fish Wildlife & Parks	A	A																																					
Grass Range Ambulance	E	A	E																																				
Fergus County DES	E	E	E	E																																			
Beaver Creek/Cottonwood Crk VFD	E	E	E	E	E																																		
Hilger Fire	E	E	E	E	E																																		
Moore Fire	E	E	E	E	E	E																																	
Border Patrol	E	E	E	E	E	E	E	E																															
Blaine County Sheriff	E	E	E	E	E	E	E	E	E																														
Meagher County Sheriff	E	E	E	E	E	E	E	E	E	E																													
Wheatland County Sheriff	E	E	E	E	E	E	E	E	E	E	E																												
Park County Sheriff	E	E	E	E	E	E	E	E	E	E	E	E																											
Gallatin County Sheriff	E	E	E	E	E	E	E	E	E	E	E	E	E																										
Central Montana Medical Cntr EMS	A	A	E	E	E	E	E	E	E	E	E	E	E	E																									
Judith Basin County Sheriff	A	A	E	E	E	E	E	E	E	E	E	E	E	E	E																								
Petroleum County Sheriff	A	A	E	E	E	E	E	E	E	E	E	E	E	E	E	E																							
MHP	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																						
BLM	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																					
US Forest Service	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																				
FBI	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																			
Montana Dept. Transportation	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																		
Fergus S&R	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																	
Judith Basin S&R	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E																
Petroleum S&R	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E															
CMR Wildlife Refuge	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E														
Hobson Fire	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E													
Denton Fire	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E												
Cheadle Fire	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E											
Grass Range Fire	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E										
Grass Range EMS	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E									
Winnett Fire	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E								
Winnett EMS	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E							
Lewistown Fire and Rescue	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E		
DNRC	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E		
Heath RFD	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E		
Roy VFD	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E		

Figure 15 – Agency Interactions, Fergus County

5.2.6.3 Analysis

One of the more pressing issues in the Fergus County area is with dispatch. Fergus County has been contracting dispatch services to Judith Basin and Petroleum Counties for some time. There is discussion to have that moved to the City of Lewistown dispatch. In any case, business practices will be an important consideration going into the design phase of this project.

Coverage is an issue in certain portions of the county, mostly in the rural areas. Further details are provided in the coverage section.

The other point that is of note is the interaction matrix. This shows how many agencies work together in the region. Interoperability is very important and will benefit from a trunked system in the region. With this many agencies, it will be critical that a solid training curriculum be set

up and all responders be trained. This is especially important when business practices will be changing in the near future as well.

5.2.7 Judith Basin County

County Representative:	Charlie Kolar and Jerome Kolar
Number Of County Stakeholder Questionnaires Returned:	2
Number Of County Agencies Represented By Questionnaires:	2

5.2.7.1 Judith Basin County Concerns or Issues

1. Communications Improvements

The following pie chart depicts the communications improvements desired by the responding stakeholders in this county:

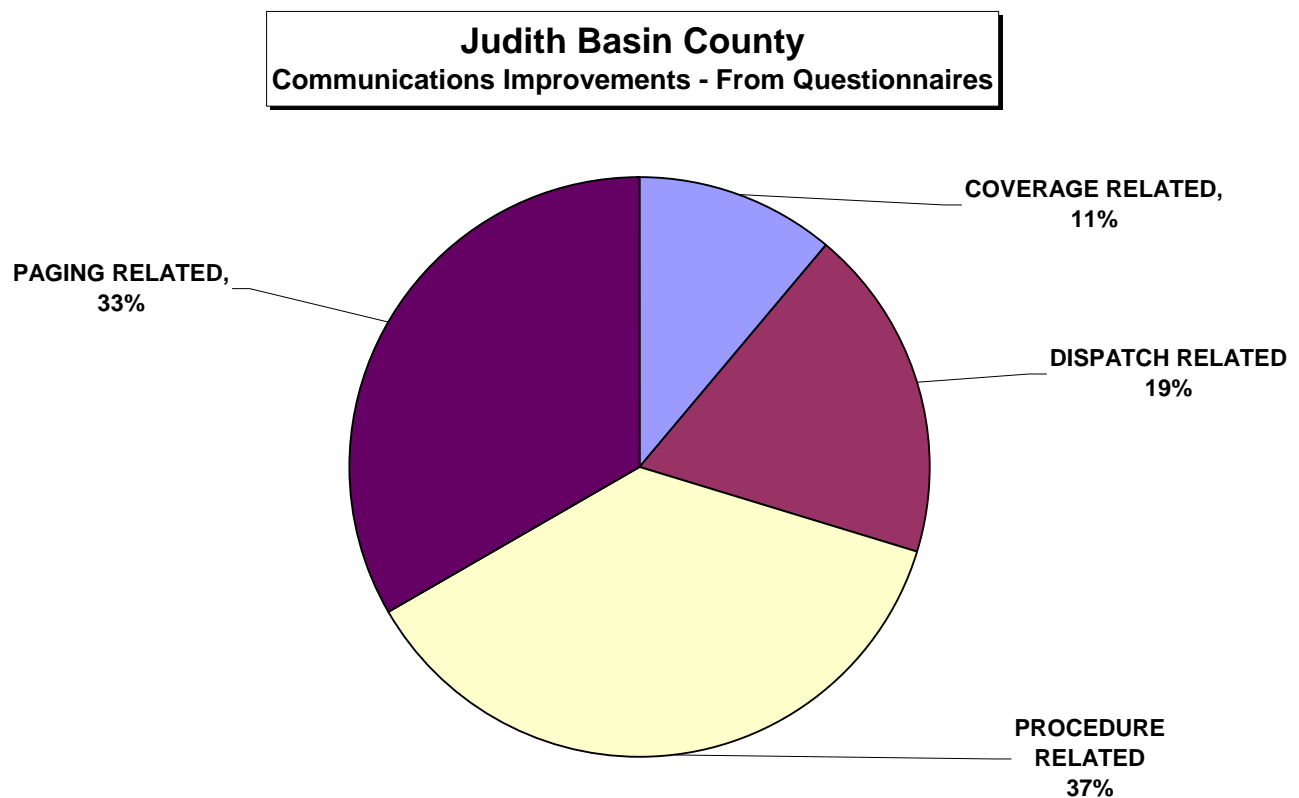


Figure 16 – Communications Improvements, Judith Basin County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five communications improvements they would like to see. Those items ranked higher were given a higher point value than those ranked lower. A percentage was then calculated. If the chart contains less than five “wedges,” this means the stakeholders did not list the full five possible items.

2. Success Factors

The following chart depicts the success factors considered critical by the responding stakeholders in this county in order for the CMICC radio project to be successful.

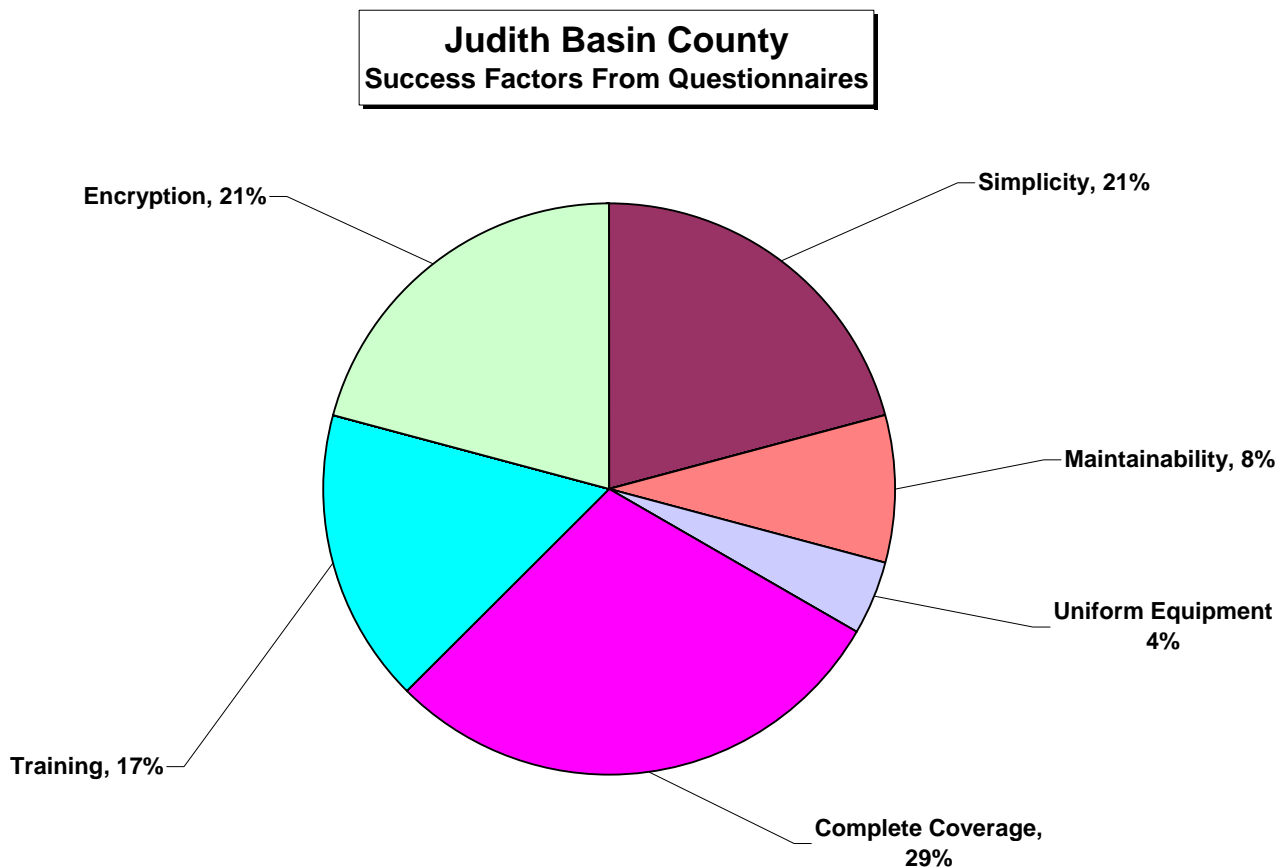


Figure 17 – Critical Success Factors, Judith Basin County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five factors they felt were most necessary for the CMICC radio project to be successful. Those items ranked higher were given a higher point value than those ranked lower, in order to give higher-ranked items more weight. A percentage for each item was then calculated. If the chart contains less than five items (“wedges”), this indicates the stakeholders did not list the full five possible items.

Some of the same items often appear in both the communications improvements chart and the critical success factors chart. This indicates that these items are very important to the stakeholders.

5.2.7.2 Judith Basin County Agency Interactions

Judith Basin County									
Key:									
E - Emergency Basis Only									
A - Administrative & Emergency Basis									
		Judith Basin Sheriff	Windham VFD	Other JB County	US Forest Service	Chouteau County Sheriff	Cascade County Sheriff	Wheatland County Sheriff	Fergus County Sheriff
Judith Basin Sheriff									
Windham VFD	E								
Other JB County Fire Agencies	E	A							
US Forest Service	E	E	E						
Chouteau County Sheriff	A	E	E	E					
Cascade County Sheriff	A	E	E	E	E				
Wheatland County Sheriff	A	E	E	E	E	E			
Fergus County Sheriff	A	E	E	E	E	E	E		

5.2.8 Pondera County

County Representative:	Cindy Mullaney
Number Of County Stakeholder Questionnaires Returned:	10
Number Of County Agencies Represented By Questionnaires:	10

5.2.8.1 Pondera County Concerns or Issues

1. Communications Improvements

The following pie chart depicts the communications improvements desired by the responding stakeholders in this county:

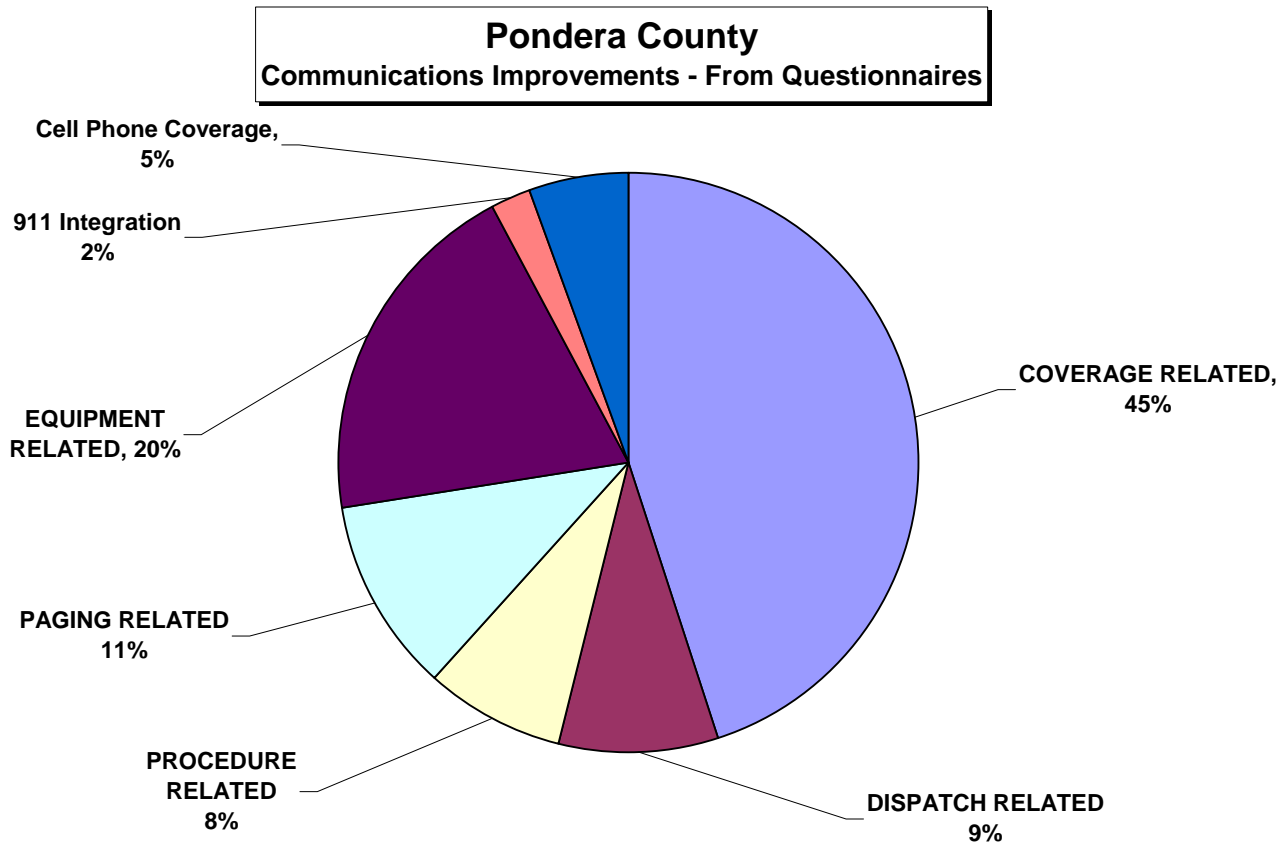


Figure 19 – Communications Improvements, Pondera County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five communications improvements they would like to see. Those items ranked higher were given a higher point value than those ranked lower. A percentage was then

calculated. If the chart contains less than five “wedges,” this means the stakeholders did not list the full five possible items.

2. Success Factors

The following chart depicts the success factors considered critical by the responding stakeholders in this county in order for the CMICC radio project to be successful.

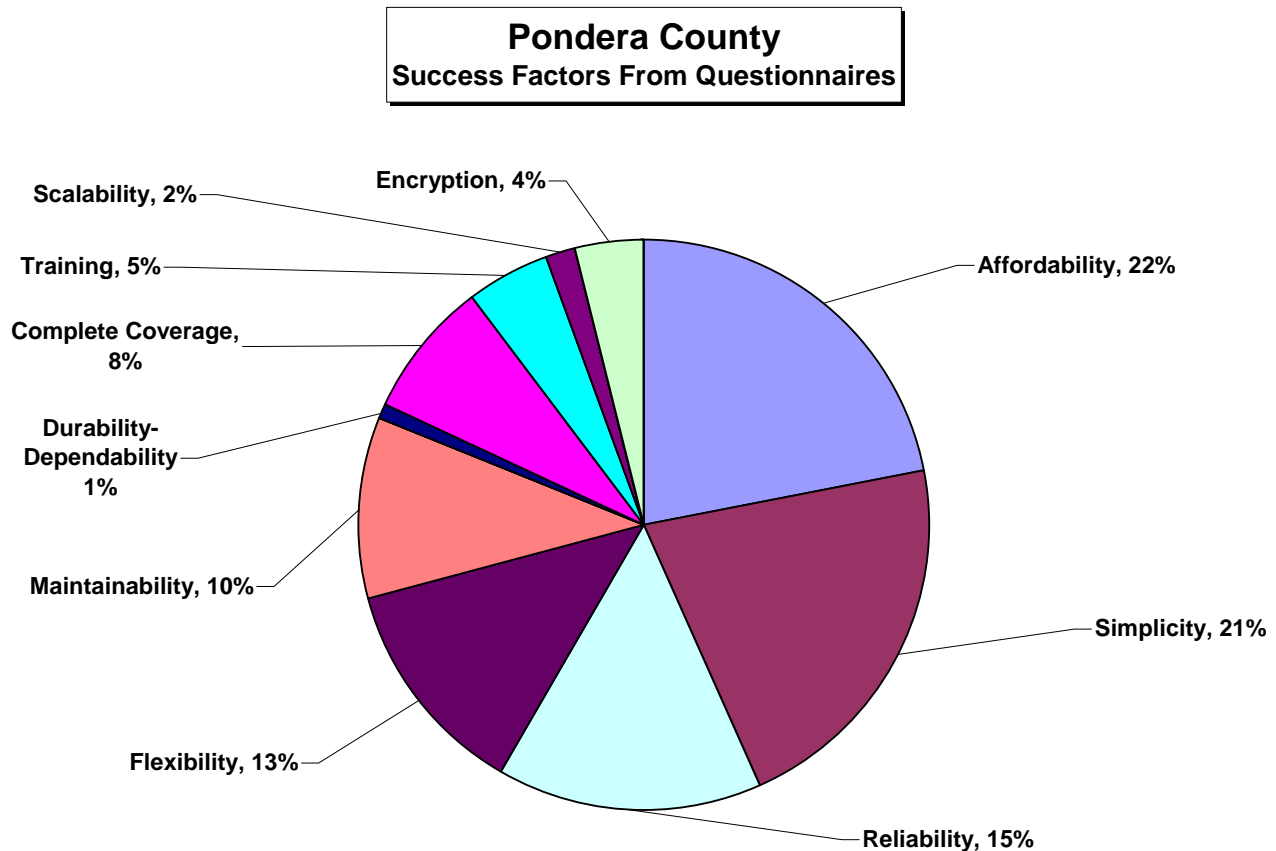


Figure 20 – Critical Success Factors, Pondera County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five factors they felt were most necessary for the CMICC radio project to be successful. Those items ranked higher were given a higher point value than those ranked lower, in order to give higher-ranked items more weight. A percentage for each item was then calculated. If the chart contains less than five items (“wedges”), this indicates the stakeholders did not list the full five possible items.

Some of the same items often appear in both the communications improvements chart and the critical success factors chart. This indicates that these items are very important to the stakeholders.

5.2.8.2 Pondera County Agency Interactions

Pondera County		Pondera County Sheriff	Conrad Police Dept.	Pondera Search and Rescue	Pondera County Ambulance	Pondera Medical Center	Pondera DES	Conrad County Road	Pondera County Schools	Glacier County Weed District	Toole County Sheriff	Teton County Sheriff	Teton Fire	Toole Ambulance	Teton County DES	Toole County DES	Glacier County DES	Chouteau County DES	MHP
Key:																			
E - Emergency Basis Only																			
A - Administrative & Emergency Basis																			
Pondera County Sheriff																			
Conrad Police Dept.	A																		
Pondera Search and Rescue	E	E																	
Pondera County Ambulance	E	E	E																
Pondera Medical Center	E	E	E	E															
Pondera DES	E	E	E	E	E														
Pondera County Road	E	E	E	E	E	E													
Conrad Public Works	E	E	E	E	E	E	E												
Pondera County Schools	E	E	E	E	E	E	A	E											
Pondera County Weed District	E	E	E	E	E	E	A	E	E										
Glacier County Sheriff	A	E	E	E	E	E	E	E	E										
Toole County Sheriff	A	E	E	E	E	E	E	E	E	E									
Teton County Sheriff	A	E	E	E	E	E	E	E	E	E	E								
Teton Fire	E	E	E	E	E	E	E	E	E	E	E	E							
Teton Ambulance	E	E	E	E	E	E	E	E	E	E	E	E	E						
Toole Ambulance	E	E	E	E	E	E	E	E	E	E	E	E	E	E					
Teton County DES	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E				
Toole County DES	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
Glacier County DES	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E		
Chouteau County DES	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	
MHP	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E

Figure 21 – Agency Interactions, Pondera County

5.2.8.3 Analysis

Pondera County is very much in need of additional coverage, particularly with portables. The good thing is that they are surrounded by Northern Tier coverage which will be trunked which means they can utilize that part of the system. This will also help with the channel congestion that was identified in the questionnaires.

Like all counties, they also need upgraded equipment in certain agencies and dispatch. Law enforcement and EMS agencies are very interested in encryption.

5.2.9 Teton County

County Representative:	Dick Van Auken and Deb Coverdell
Number Of County Stakeholder Questionnaires Returned:	3
Number Of County Agencies Represented By Questionnaires:	3

5.2.9.1 Teton County Concerns or Issues

1. Communications Improvements

The following pie chart depicts the communications improvements desired by the responding stakeholders in this county:

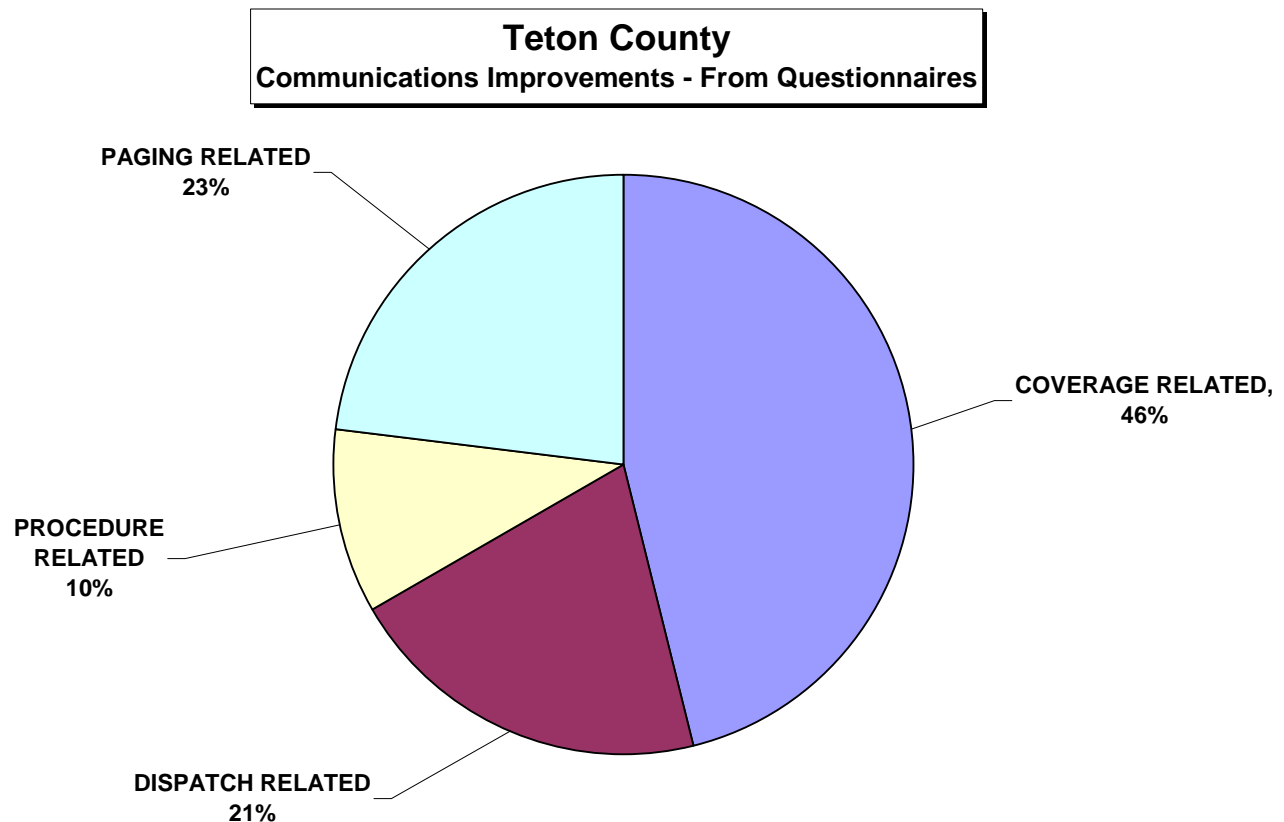


Figure 22 – Communications Improvements, Teton County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five communications improvements they would like to see. Those items ranked higher were given a higher point value than those ranked lower. A percentage was then

calculated. If the chart contains less than five “wedges,” this means the stakeholders did not list the full five possible items.

2. Success Factors

The following chart depicts the success factors considered critical by the responding stakeholders in this county in order for the CMICC radio project to be successful.

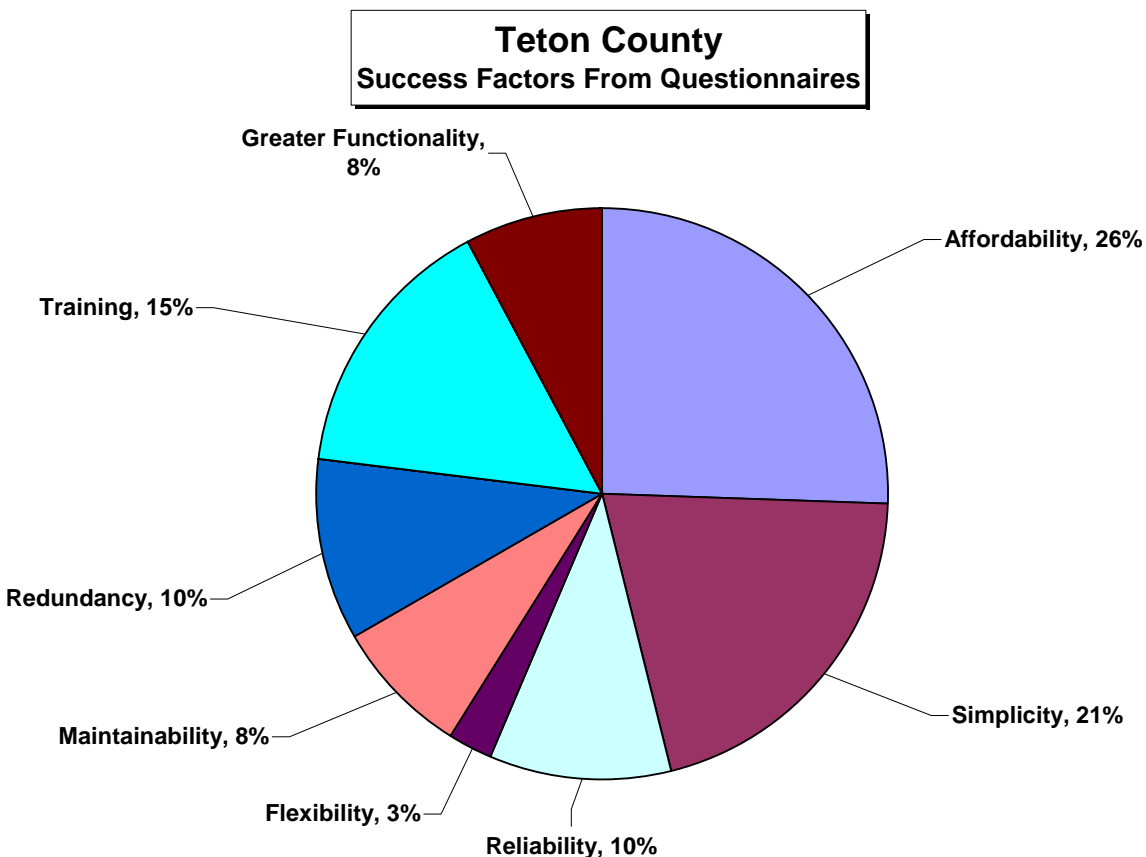


Figure 23 – Critical Success Factors, Teton County

How to read this chart:

Stakeholders were asked to list, in priority order, the top five factors they felt were most necessary for the CMICC radio project to be successful. Those items ranked higher were given a higher point value than those ranked lower, in order to give higher-ranked items more weight. A percentage for each item was then calculated. If the chart contains less than five items (“wedges”), this indicates the stakeholders did not list the full five possible items.

Some of the same items often appear in both the communications improvements chart and the critical success factors chart. This indicates that these items are very important to the stakeholders.

5.2.9.2 Teton County Agency Interactions

Teton County		Teton County Sheriff	Teton County EMS	Dutton VFD	Teton County EMS	Area Hospitals	Pondera County Sheriff	Lewis and Clark County Sheriff	Cascade County Sheriff	Chouteau County Sheriff	FBI	DEA	US Forest Service	MHP	DNRC	Pondera County Fire	Teton County Road	BLM	Other Teton County Fire
Key:																			
E - Emergency Basis Only																			
A - Administrative & Emergency Basis																			
Teton County Sheriff																			
Teton County EMS	A																		
Dutton VFD	E	E																	
Teton County EMS	E	E	E																
Area Hospitals	E	E	E	E															
Pondera County Sheriff	A	E	E	E	E														
Lewis and Clark County Sheriff	A	E	E	E	E	E													
Cascade County Sheriff	A	E	E	E	E	E	E												
Chouteau County Sheriff	A	E	E	E	E	E	E	E											
FBI	E	E	E	E	E	E	E	E	E										
DEA	E	E	E	E	E	E	E	E	E	E									
US Forest Service	E	E	E	E	E	E	E	E	E	E	E								
MHP	E	E	E	E	E	E	E	E	E	E	E	E							
DNRC	E	E	E	E	E	E	E	E	E	E	E	E	E						
Pondera County Fire	E	E	E	E	E	E	E	E	E	E	E	E	E	E					
Teton County Road	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E				
BLM	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
Other Teton County Fire	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E		

Figure 24 – Agency Interactions, Teton County

5.2.9.3 Analysis

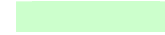
Teton County is very much like other counties in that they need improved coverage and equipment. They face difficult mountainous terrain on the west side of the county and deep coulees on the east side.

Encryption is the number one priority for law enforcement. Aging equipment is next on the list.

During meetings, frustration was expressed regarding the limitations on how federal funding can be utilized. They would like to be able to have more flexibility in the way that funding is used.

5.3 Existing Physical Infrastructure

Existing site coverage shown in light green



Dead spots or areas where radio coverage is a concern shown in blue



1	Belgian Hill	Pondera County	9	Kings Hill	Cascade County
2	Seven Mile Hill	Teton County	10	Belt Butte	Cascade County
3	Teton Ridge	Teton County	11	Raynesford	Judith Basin County
4	Cascade West	Cascade County	12	Highwood Baldy	Chouteau County
5	Cascade South	Cascade County	13	Centennial	Chouteau County & Chippewa Cree
6	Milligan Hill	Cascade County			
7	Gore Hill	Cascade County	14	South Moccasin	Fergus County
8	Cascade North	Cascade County	15	Judith Peak	Fergus County

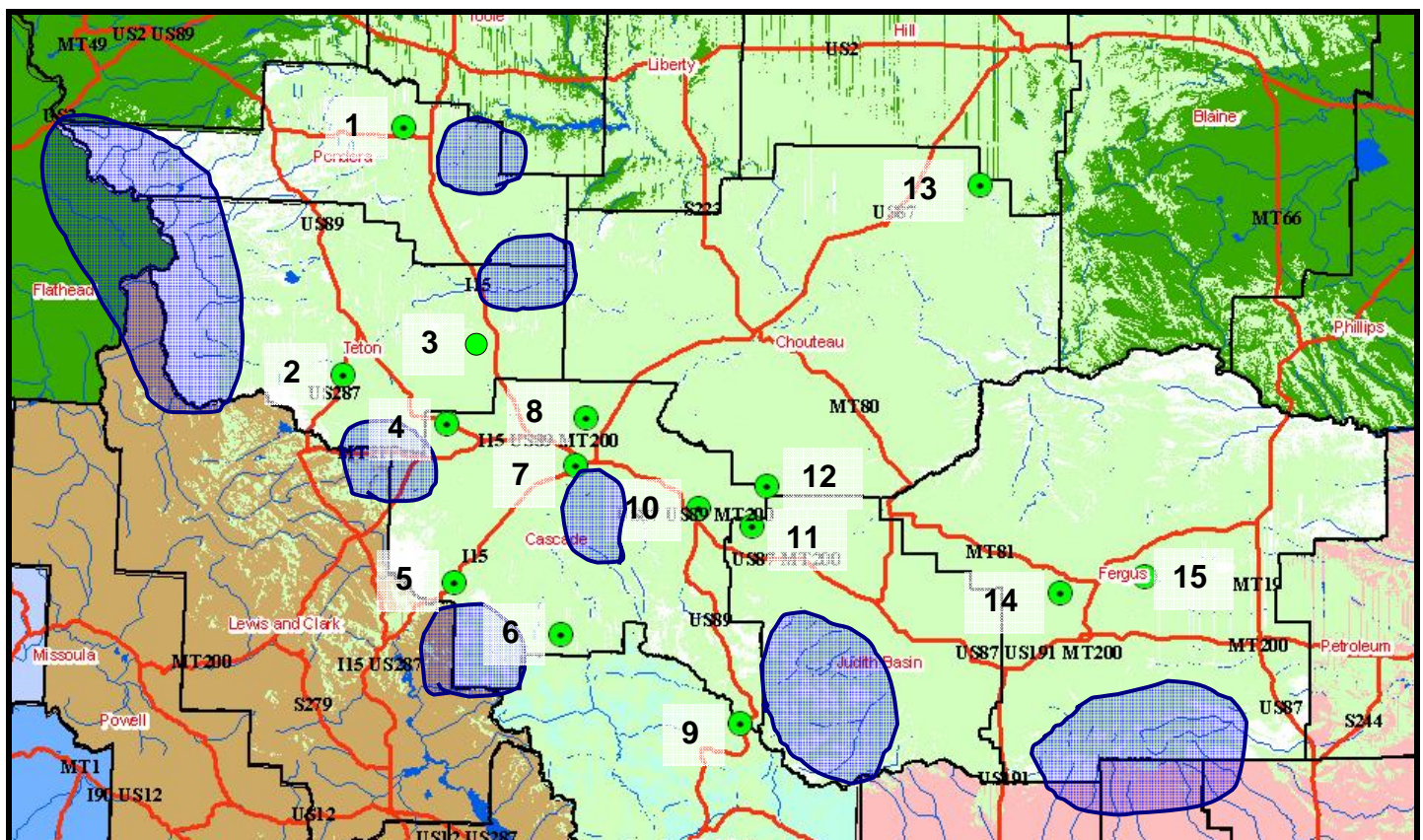


Figure 25 – Site Map: Consortium-Wide

These dead spots are very roughly drawn. They are primarily to indicate that there are some coverage issues within a general area and are not to be taken as indicating no coverage throughout an area.

5.4 Site Surveys by Site

5.4.1 Belgian Hill

Site Pictures



Site Description:

This is the only communications site in Pondera County. It serves all emergency responders in the area.

Area:

It is located 10 miles northeast of Conrad.

Owner:

Pondera County

Elevation:

4037'

Latitude:

48° 19' 47.1"

Longitude:

112° 02' 10.1"

Tower:

Guyed tower – 140ft

Building Type:

Old Air Force communication building

Building Size:

10'x15'x6'

List of Users at this site:

- Pondera County Sheriff
- National Weather Service
- Pondera County EMS
- Pondera County Roads

Radios at this site:

- 155.190 and 156.150 Sheriff's Office
- 154.980 and 155.880 Road Dept/Conrad Schools
- 155.805 and 155.085 EMS/Fire/Hospital

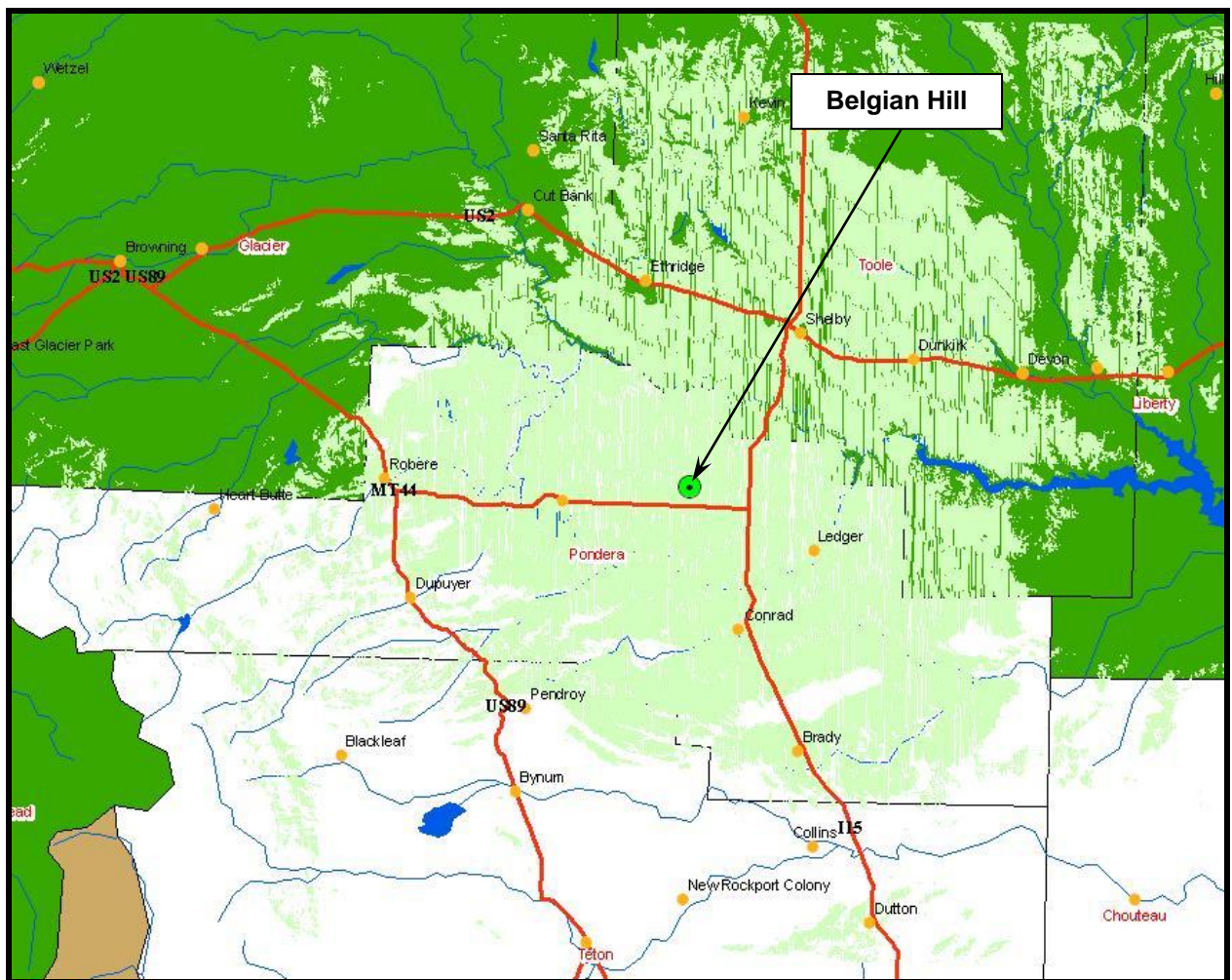


Figure 26 – Coverage Map: Belgian Hill

5.4.2 Belt Butte

Site Pictures



Site Description:

This site serves the eastern side of Great Falls and a good portion of eastern Cascade County including Belt. The facility would need extensive upgrades to in order to meet any kind of modern standards.

Area:

Eastern Cascade County near Belt

Owner:

Cascade County

Elevation:

1018 meters

Latitude:

47° 30' 40.8N

Longitude:

111° 18' 57.9W

Tower:

None (utilizes a pipe mounted to the comm shack)

Building Type:

Van body

Building Size:

8'x12'

List of Users at this site:

- Cascade County
- USAF
- Verizon
- City of Belt

Radios at this site:

- 154.800 TX 155.670 RX Public works primary, used by public safety also

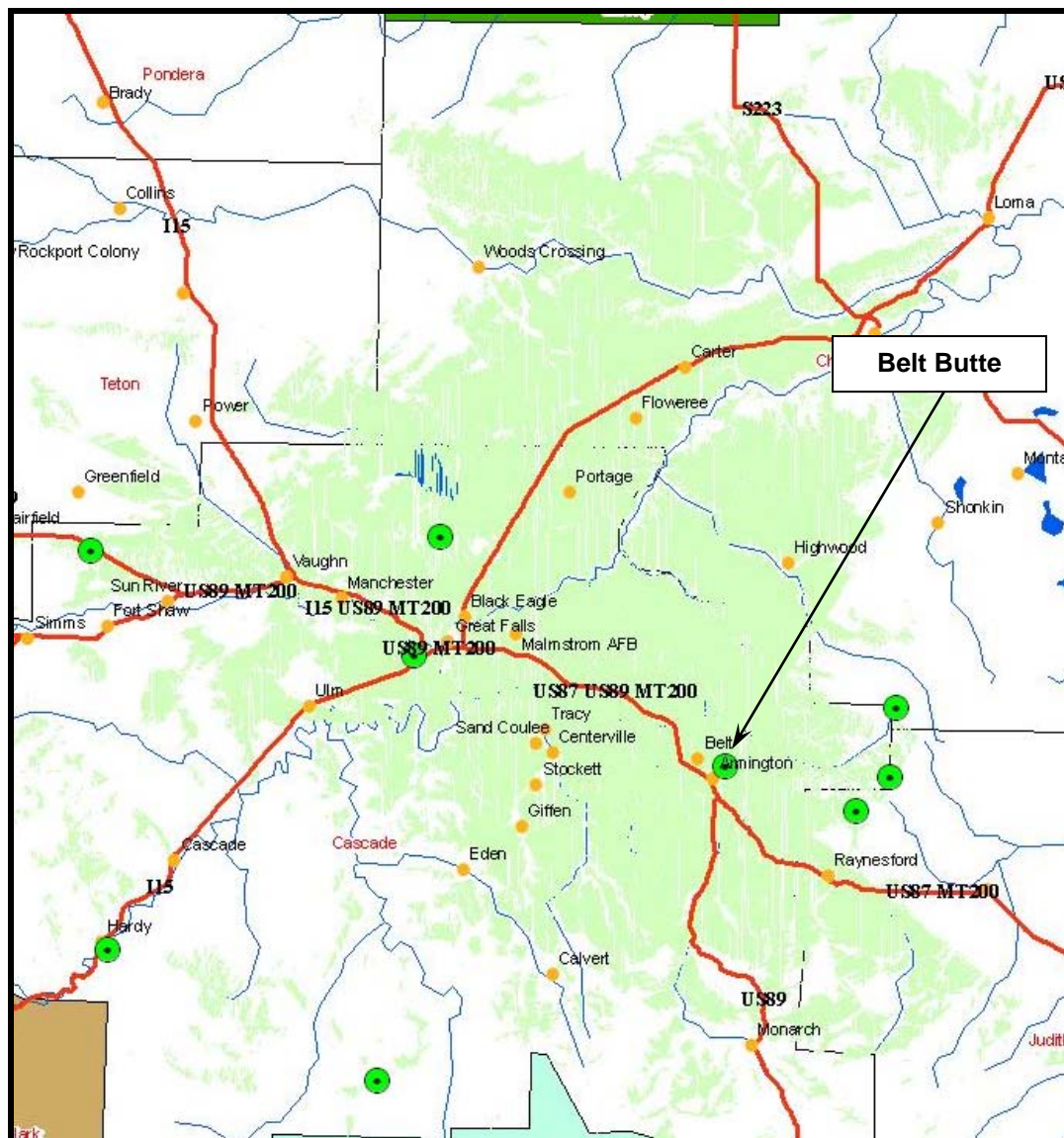


Figure 27 – Coverage Map: Belt Butte

5.4.3 Cascade North

Site Pictures



Site Description:

Good infrastructure for this site. Cascade County uses this for the city of Great Falls and northern Cascade County coverage.

Area:

North of Great Falls

Owner:

Bob Newhall

Elevation:

3842'

Latitude:

47° 36'25.9N

Longitude:

111° 19' 4.9W

Tower:

160' Guyed tower

Building Type:

Concrete structure

Building Size:

10'x20'

List of Users at this site:

- Cascade County
- NR Recording
- NWS

Radios at this site:

- 154.770TX 155.580 RX - Public Safety

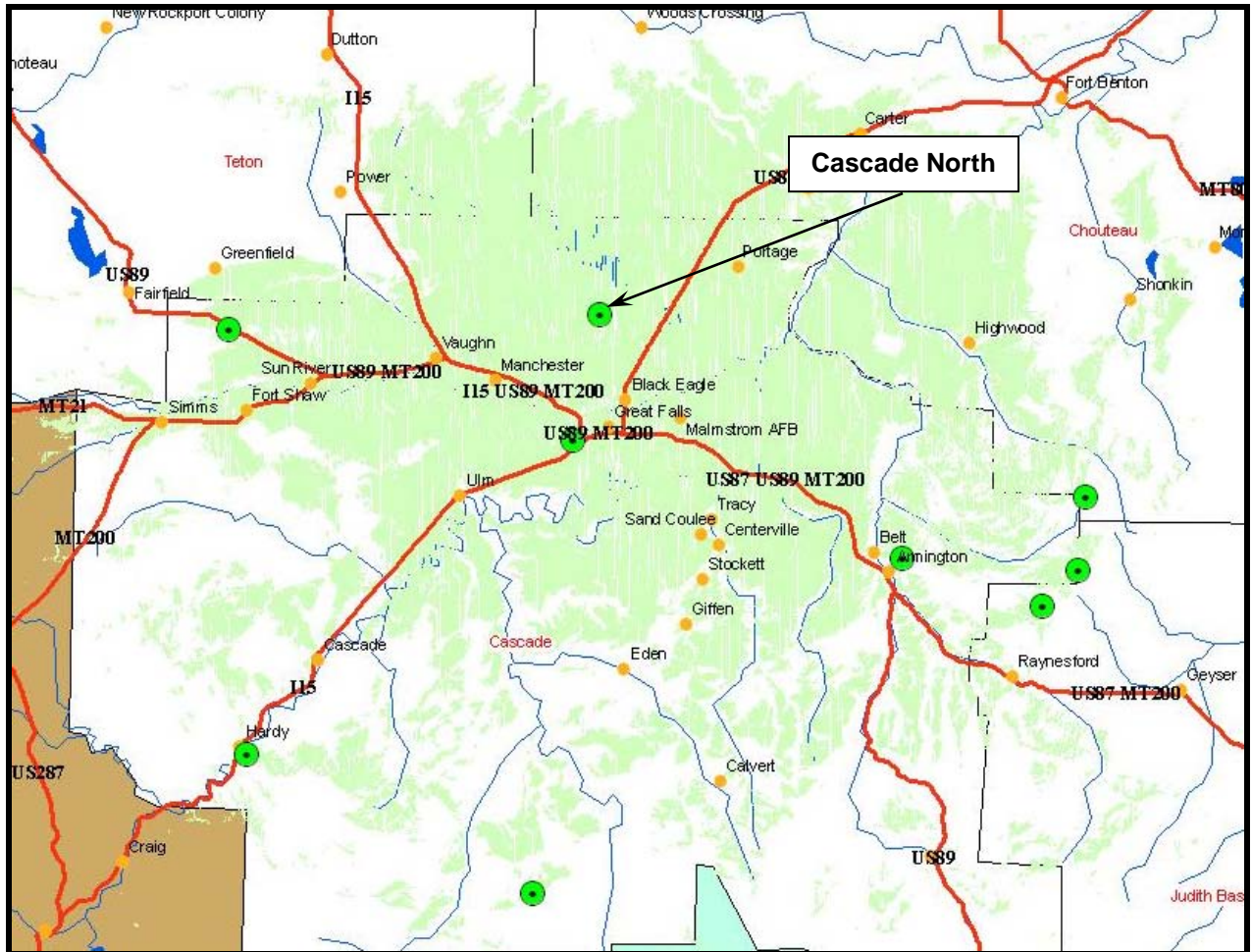


Figure 28 – Coverage Map: Cascade North

5.4.4 Cascade South

Site Pictures



Site Description:

This is a walk or fly in only site on a aeronautics beacon tower. It covers primarily the I-15 corridor in southern Cascade County.

Area:

Near I-15 in southern Cascade County

Owner:

State of Montana

Elevation:

4288'

Latitude:

47° 10' 49.8"N

Longitude:

111° 47' 45.0"W

Tower:

100' free standing aeronautical beacon tower

Building Type:

Communications van body

Building Size:

6'x8'

List of Users at this site:

- Cascade County

Radios at this site:

- Daniels 154.710TX 155.640RX - Public Safety

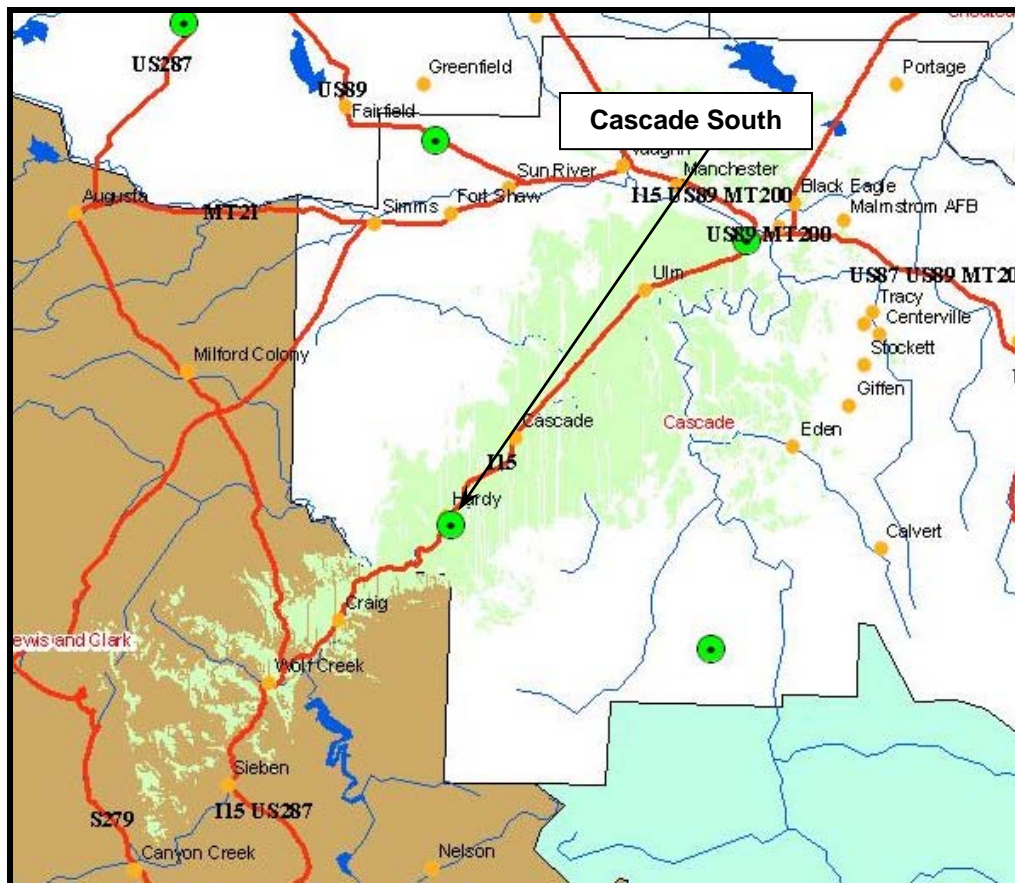


Figure 29 – Coverage Map: Cascade South

5.4.5 Cascade West

Site Pictures



Site Description:

Minimal facility in both radio enclosure and tower. Covers west central Cascade County.

Area:

East of Vaughn

Owner:

Cascade County

Elevation:

4014'

Latitude:

47° 34' 59"N

Longitude:

111° 50' 16"W

Tower:

20' rohn

Building Type:

Self contained communications enclosure

Building Size:

6'x8'

List of Users at this site:

- Cascade County

Radios at this site:

- GE Master II 111 50' 16W - Public Safety

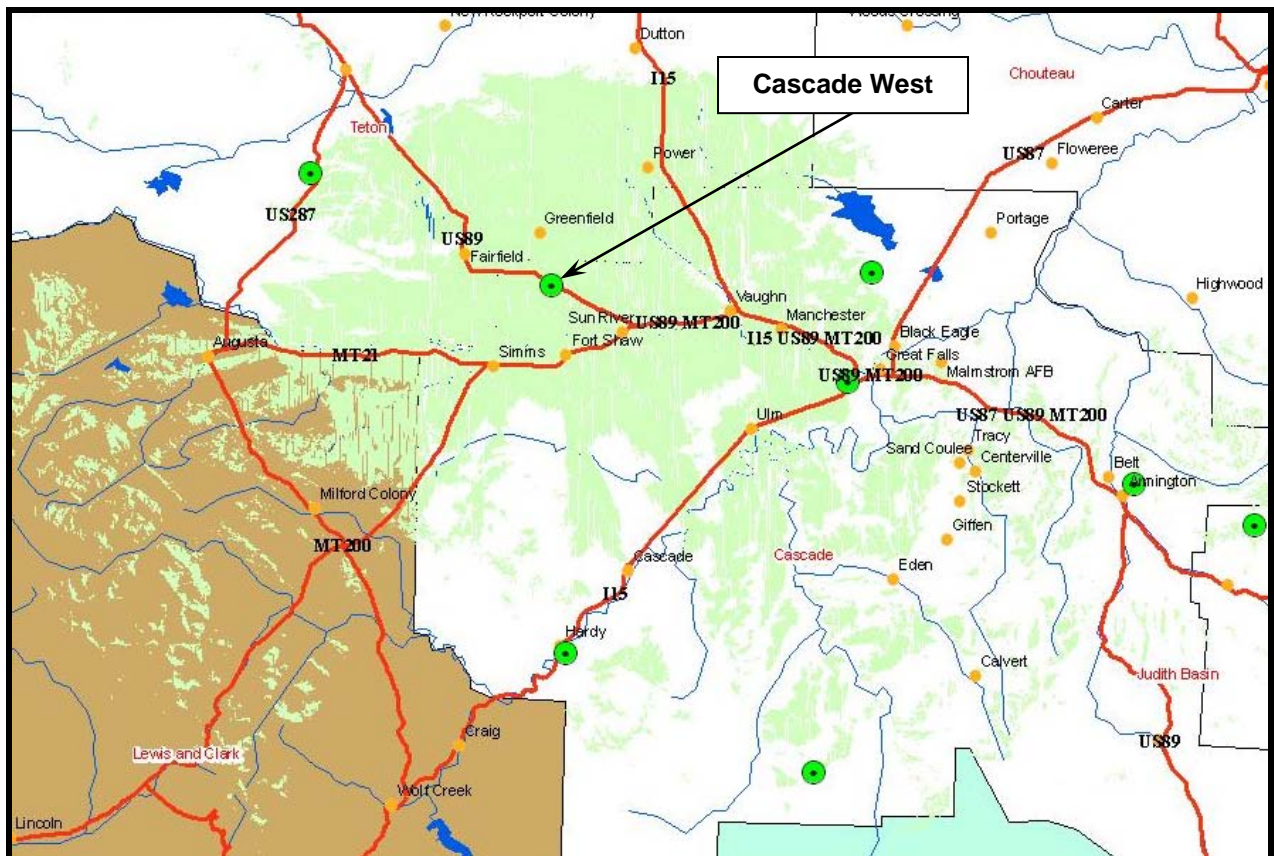


Figure 30 – Coverage Map: Cascade West

5.4.6 Centennial

Site Pictures



Site Description:

This is an excellent facility both from a coverage standpoint and facility standpoint. The Northern Tier is planning development of this site contingent upon agreements with the Chippewa Cree who own the site.

Area:

Northern Chouteau County near Rocky Boy.

Owner:

Chippewa Cree

Elevation:

1768 m

Latitude:

48° 12' 33.95"

Longitude:

109° 50' 12.73"

Tower:

Details to be gathered in next phase

Building Type:

Details to be gathered in next phase

Building Size:

Details to be gathered in next phase

List of Users at this site:

- Chouteau County

Radios at this site:

- Motorola Quantar - Chouteau County Sheriff - KNFC 597
- Motorola Quantar - Chouteau County Fire/EMS - KNGR 680
- Motorola Quantar - Chouteau County Road - KKC 887

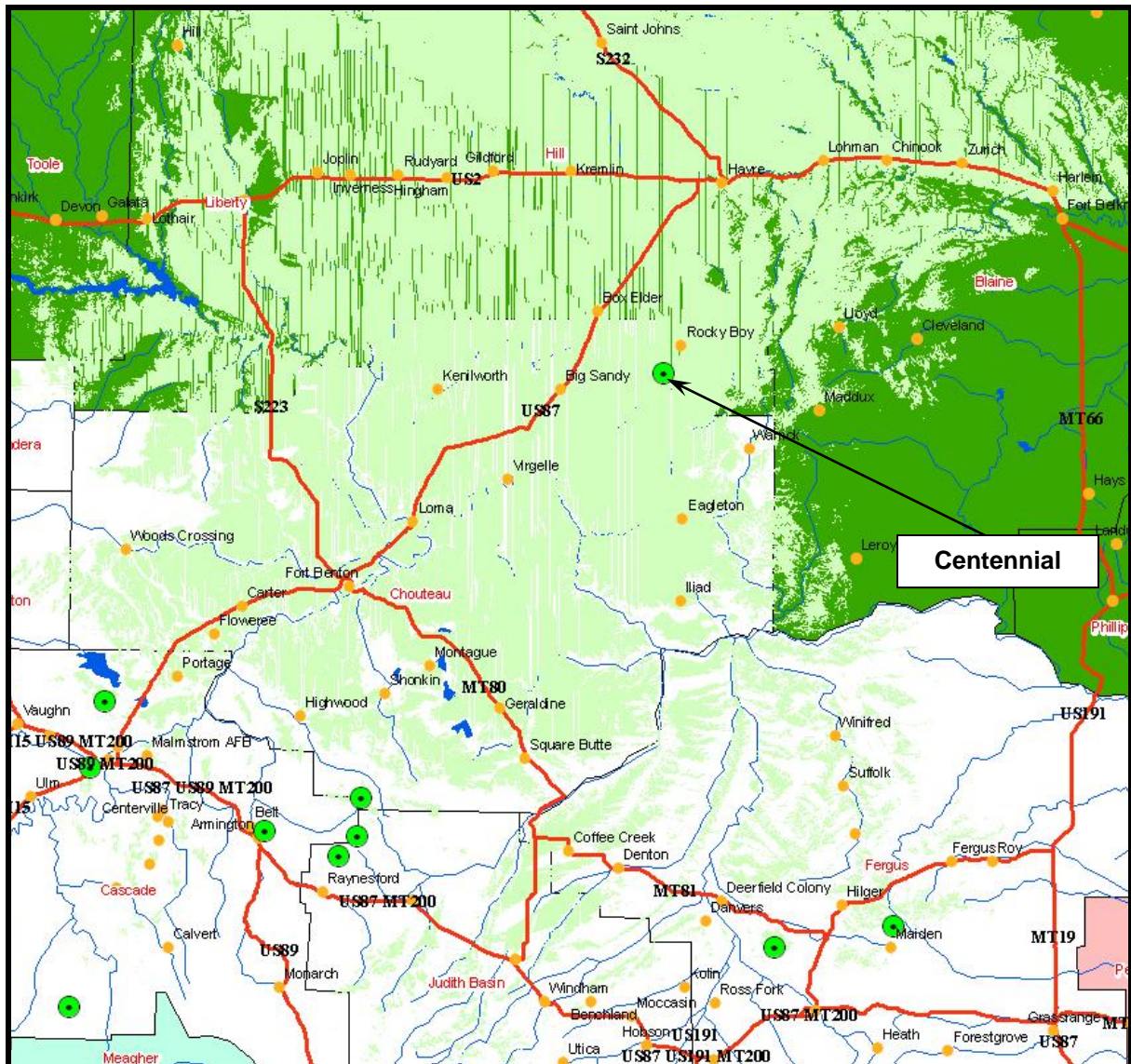


Figure 31 – Coverage Map: Centennial

5.4.7 Gore Hill – Airport Hanger

Site Pictures



Site Description:

This site has good coverage over the city of Great Falls but is in a poor communications facility. Access to the facility has been identified as an issue.

Area:

Great Falls International Airport

Owner:

Great Falls International Airport

Elevation:

3661'

Latitude:

47° 29' 10.8"N

Longitude:

111° 21' 4.9"W

Tower:

No tower, mounting is on a pipe attached to the building

Building Type:

Metal sheeting on wood frame – aircraft hanger

Building Size:

Room: 20'x40'

List of Users at this site:

- Cascade County

Radios at this site:

- GE Master 3 - 154.710 TX 155.640 RX Cascade County Sheriff's Office

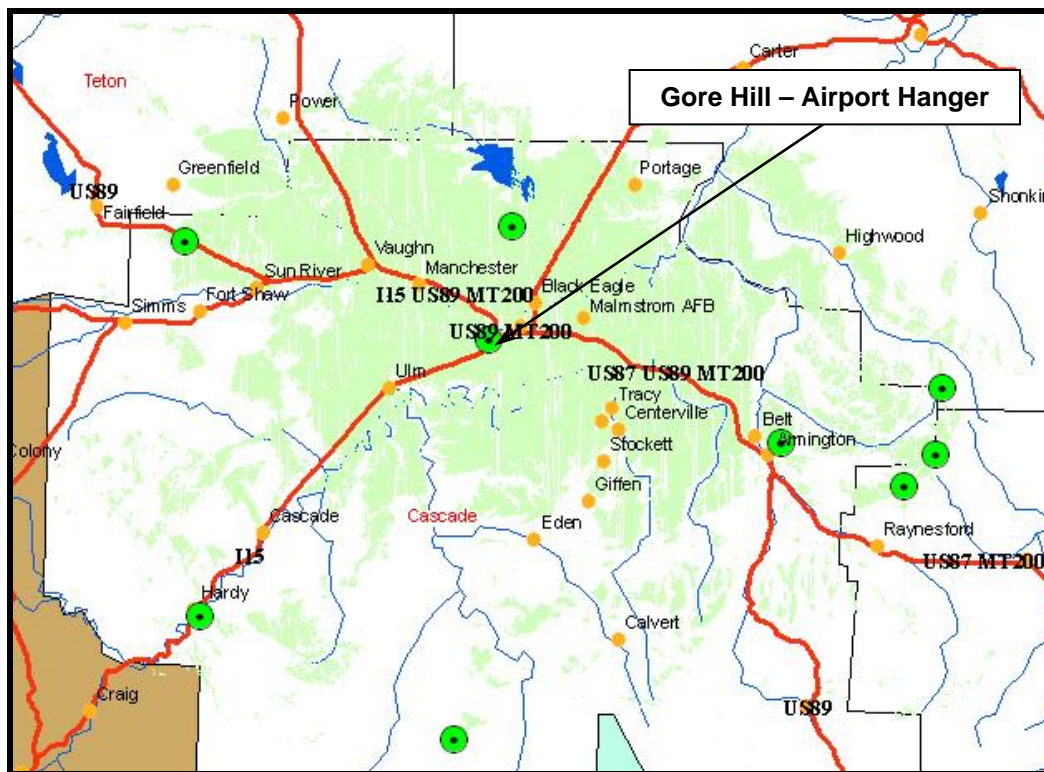


Figure 32 – Coverage Map: Gore Hill – Airport Repeater

5.4.8 Highwood Baldy

Site Pictures

No Images Available At This Time

Site Description:

Excellent site from a coverage standpoint. This site is under consideration by the Northern Tier for microwave development.

Area:

Southern Chouteau and Eastern Cascade County

Owner:

TBD

Elevation:

7670'

Latitude:

47° 26' 32.88"

Longitude:

110° 37' 51.78"

Tower:

Details to be gathered in next phase

Building Type:

Details to be gathered in next phase

Building Size:

Details to be gathered in next phase

List of Users at this site:

- Chouteau County

Radios at this site:

- Motorola Quantar - Chouteau County Sheriff - KNFC 597
- Motorola Quantar - Chouteau County Fire/EMS - KNGR 680
- Motorola Quantar - Chouteau County Road - KKC 887

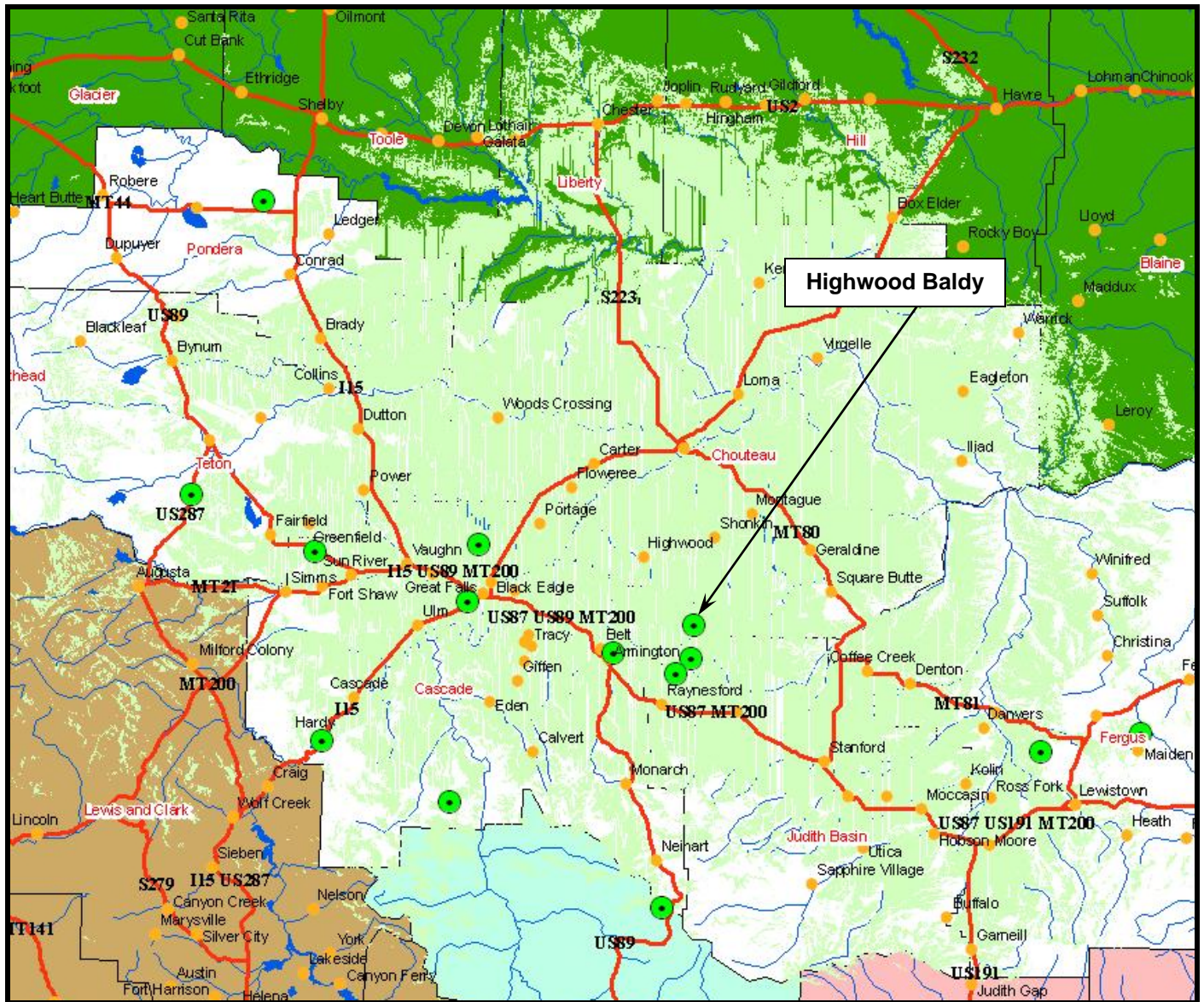


Figure 33 – Coverage Map: Highwood Baldy

5.4.9 Judith Peak

Site Pictures

No Images Available At This Time

Site Description:

Key site in Fergus County covering Lewistown and the western portion of Fergus County along with the western portion of Judith Basin County.

Area:

North and slightly west of Lewistown

Owner:

Details to be gathered in next phase

Elevation:

6427'

Latitude:

41° 13' 0.1"

Longitude:

109° 13' 17.6"

Tower:

Details to be gathered in next phase

Building Type:

Details to be gathered in next phase

Building Size:

Details to be gathered in next phase

List of Users at this site:

- Fergus County Sheriff

Radios at this site:

- Details to be gathered in next phase

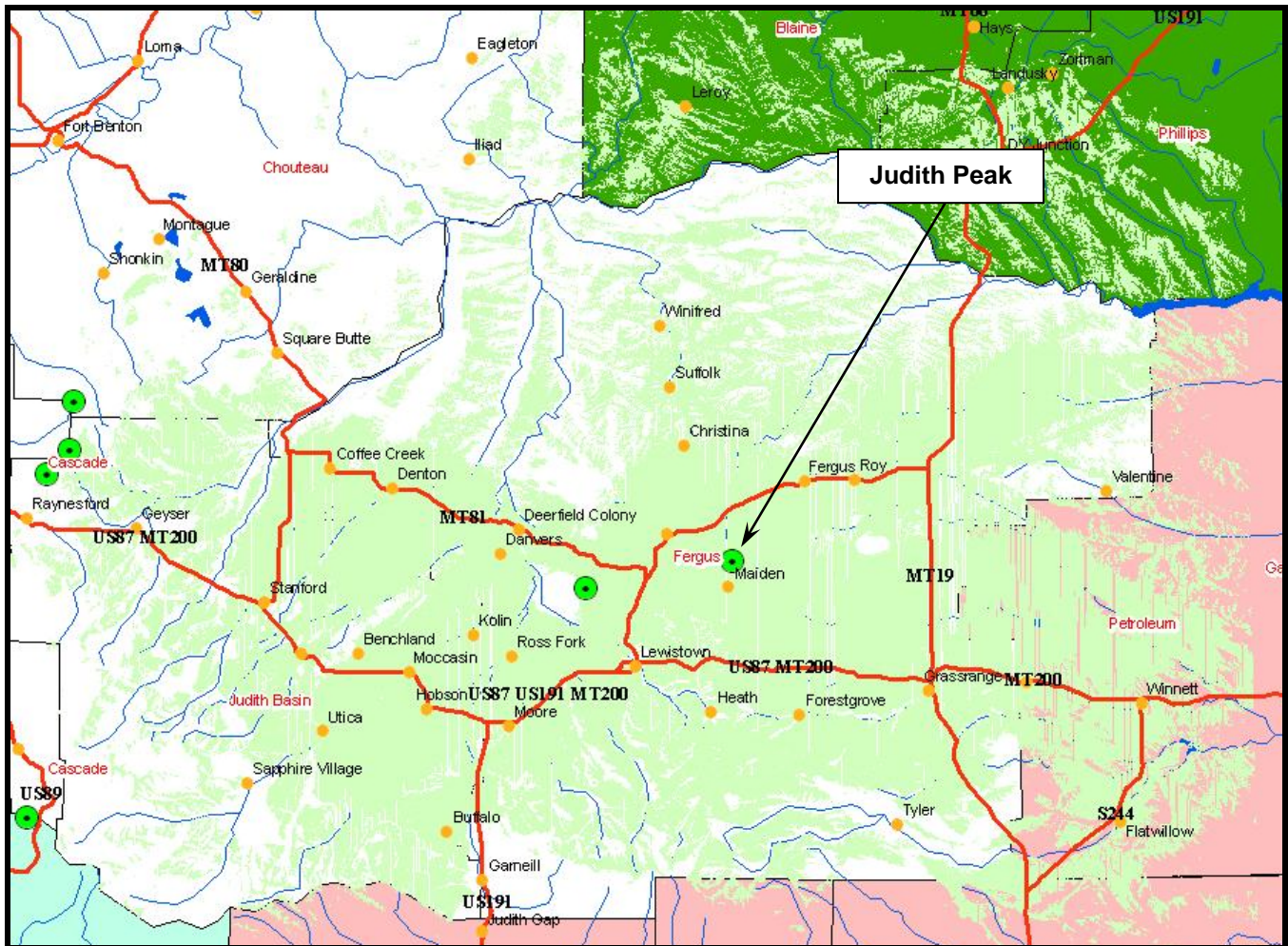


Figure 34 – Coverage Map: Judith Peak

5.4.10 Kings Hill

Site Pictures



Site Description:

Radio equipment is mounted to a forest service lookout tower on top of King's Hill, also know as Showdown Ski Area. The site overlooks the canyon areas of Neihart to Monarch to Belt which is a steep canyon. This area was identified by users as needing improvements in radio coverage.

Area:

King's Hill in southeast Cascade County

Owner:

US Forest Service

Elevation:

8189'

Latitude:

46° 50' 17.9"N

Longitude:

110° 43' 4.8"W

Tower:

Wood frame lookout tower

Building Type:

Wood frame metal siding

Building Size:

8'x8'

List of Users at this site:

- Cascade County, MHP, MT DOT, USFS, Meagher County

Radios at this site:

- Tait 154.770 TX 155.580 RX - Public Safety

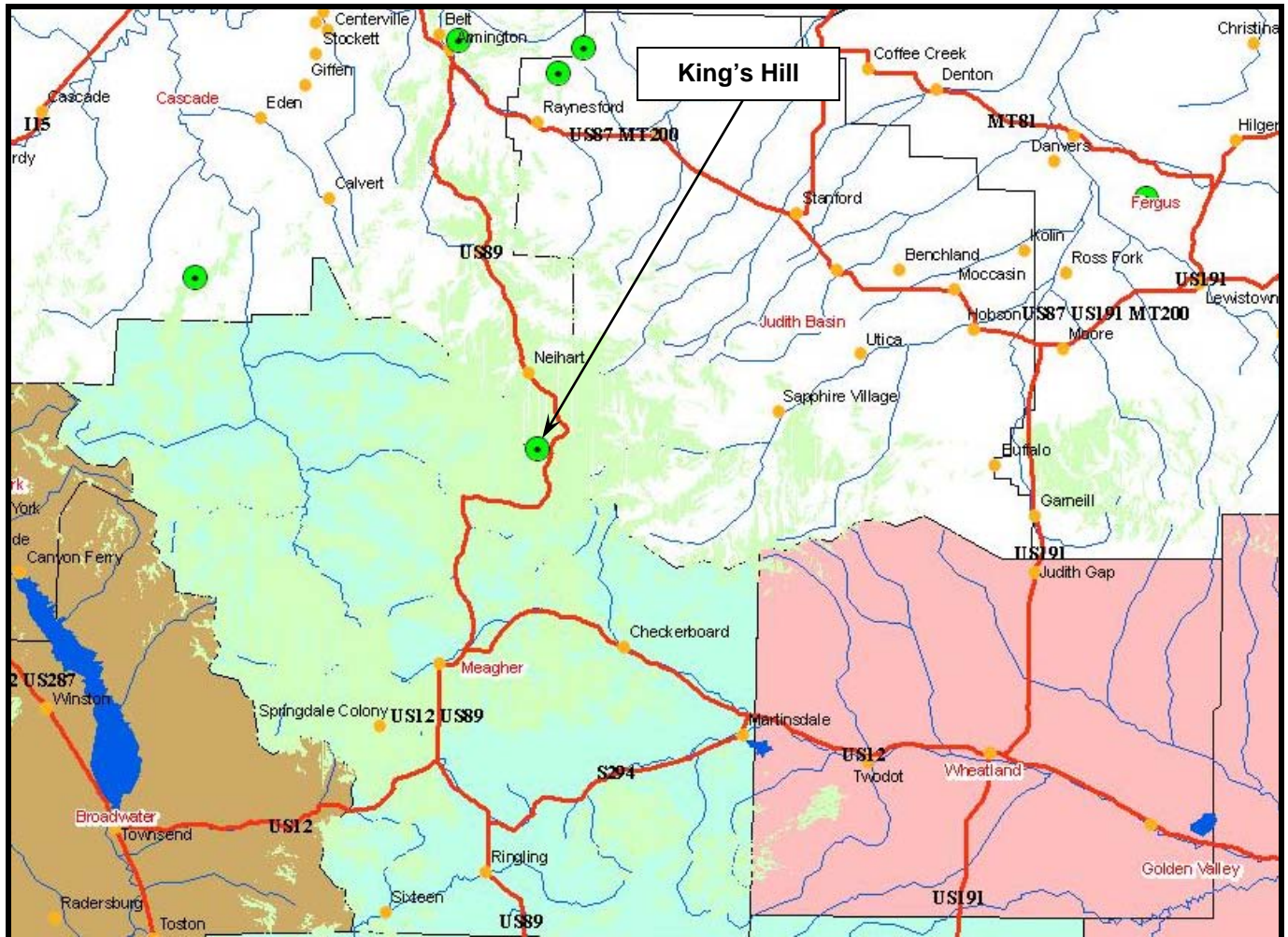


Figure 35 – Coverage Map: Kings Hill

5.4.11 Milligan Hill

Site Pictures



Site Description:

Minimal facility to cover south central Cascade County

Area:

South central Cascade County

Owner:

Details to be gathered in next phase

Elevation:

5718'

Latitude:

47° 0' 53.8"

Longitude:

111° 21' 9.9"

Tower:

None

Building Type:

Wood frame metal siding

Building Size:

6'x8'

List of Users at this site:

- Cascade County

Radios at this site:

- Details to be gathered in next phase

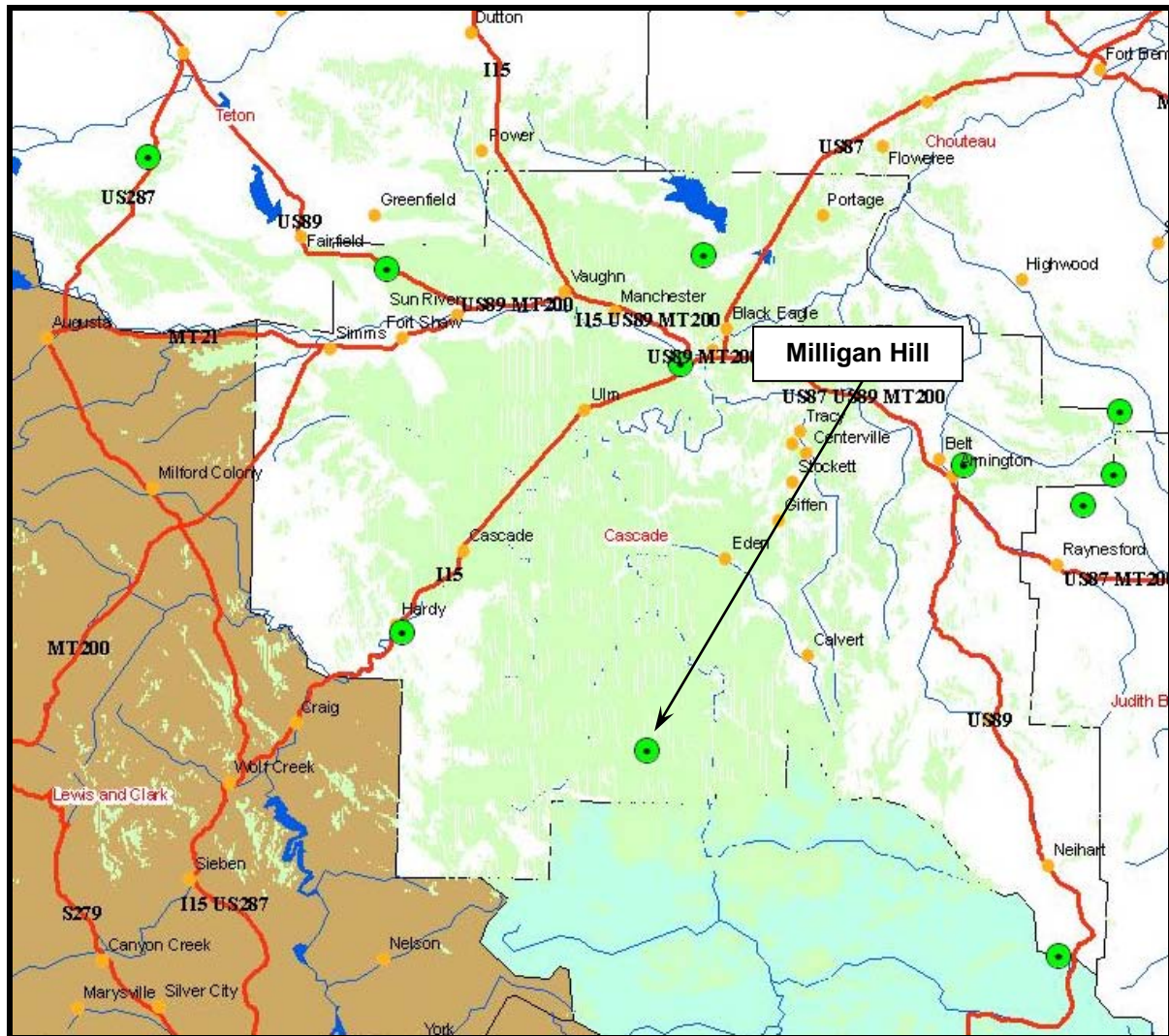


Figure 36 – Coverage Map: Milligan Hill

5.4.12 Raynesford

Site Pictures

No Images Available At This Time

Site Description:

Judith Basin County repeater near Raynesford.

Area:

Raynesford in Judith Basin County

Owner:

Owner unknown, rented from Falls Communication

Elevation:

5095'

Latitude:

47° 20' 16.7" N

Longitude:

110° 41' 18.2" W

Tower:

110' guyed tower

Building Type:

Wood frame

Building Size:

10'x10'

List of Users at this site:

- Judith Basin County, Surprise Creek Colony

Radios at this site:

- Motorola Quantar - 153.800 154.100 - Judith Basin County

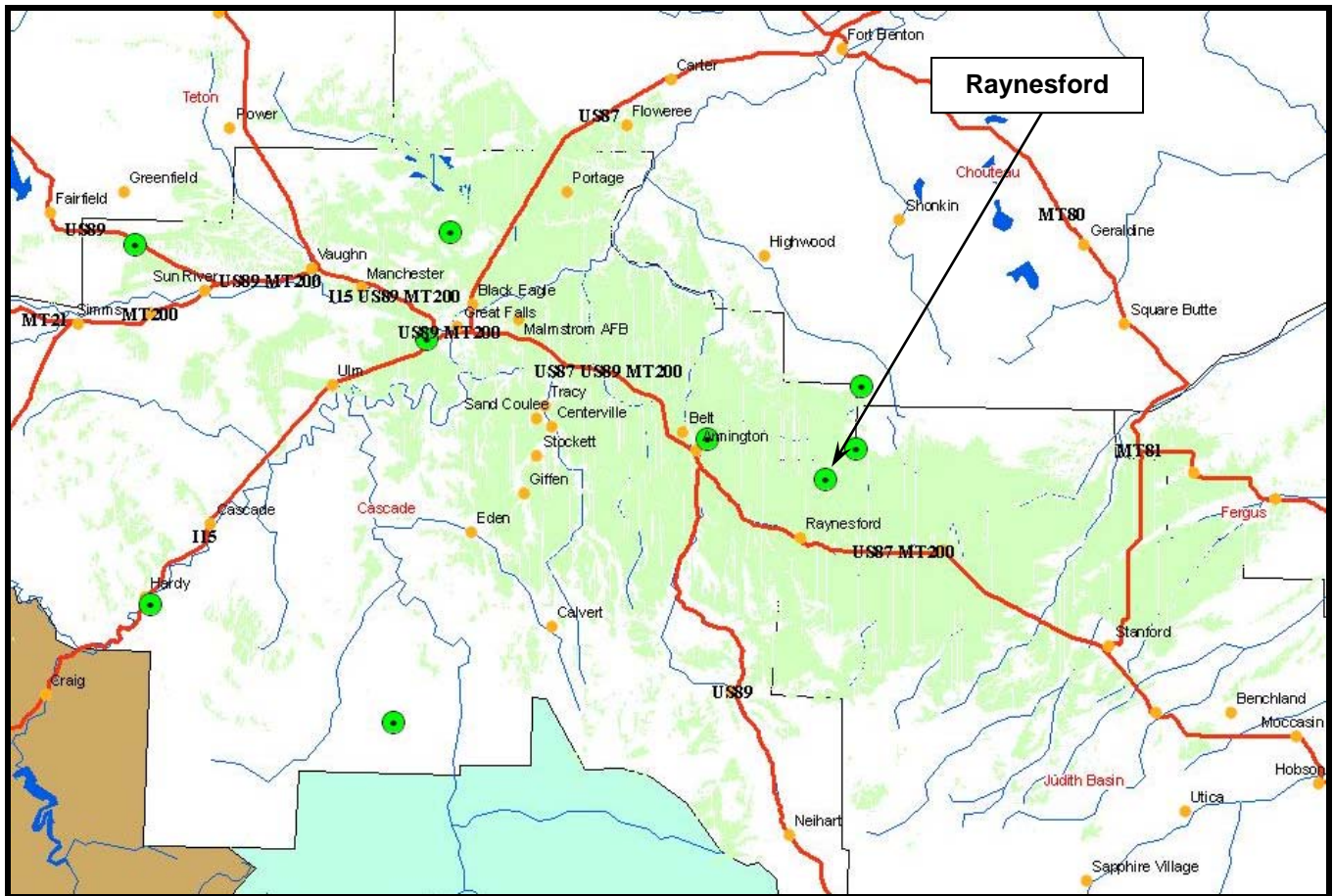


Figure 37 – Coverage Map: Raynesford

5.4.13 Seven Mile Hill

Site Pictures

No Images Available At This Time

Site Description:

Western Teton County repeater. During the analysis of sites to be set up as trunked, this site was not included. During the design phase, this site should be looked at in more detail to determine if it should become a trunked site. In looking at the combined trunked coverage, this area may need to be covered by a trunked site.

Area:

Seven miles south of Choteau off US Highway 287

Owner:

Details to be gathered in next phase

Elevation:

4064'

Latitude:

47° 47' 53.53"

Longitude:

112° 14' 7.48"

Tower:

150' guyed

Building Type:

Cement

Building Size:

Details to be gathered in next phase

List of Users at this site:

- Teton County Fire, EMS, Sheriff, Public Works, Softworx Wireless Internet

Radios at this site:

- 155.070 159.150 - Teton County Sheriff
- 154.965 154.760 - Teton County Road
- 155.055 155.925 - Teton County EMS
- 154.400 154.010 - Teton County Fire
- 155.865 158.835 - Teton County Weed

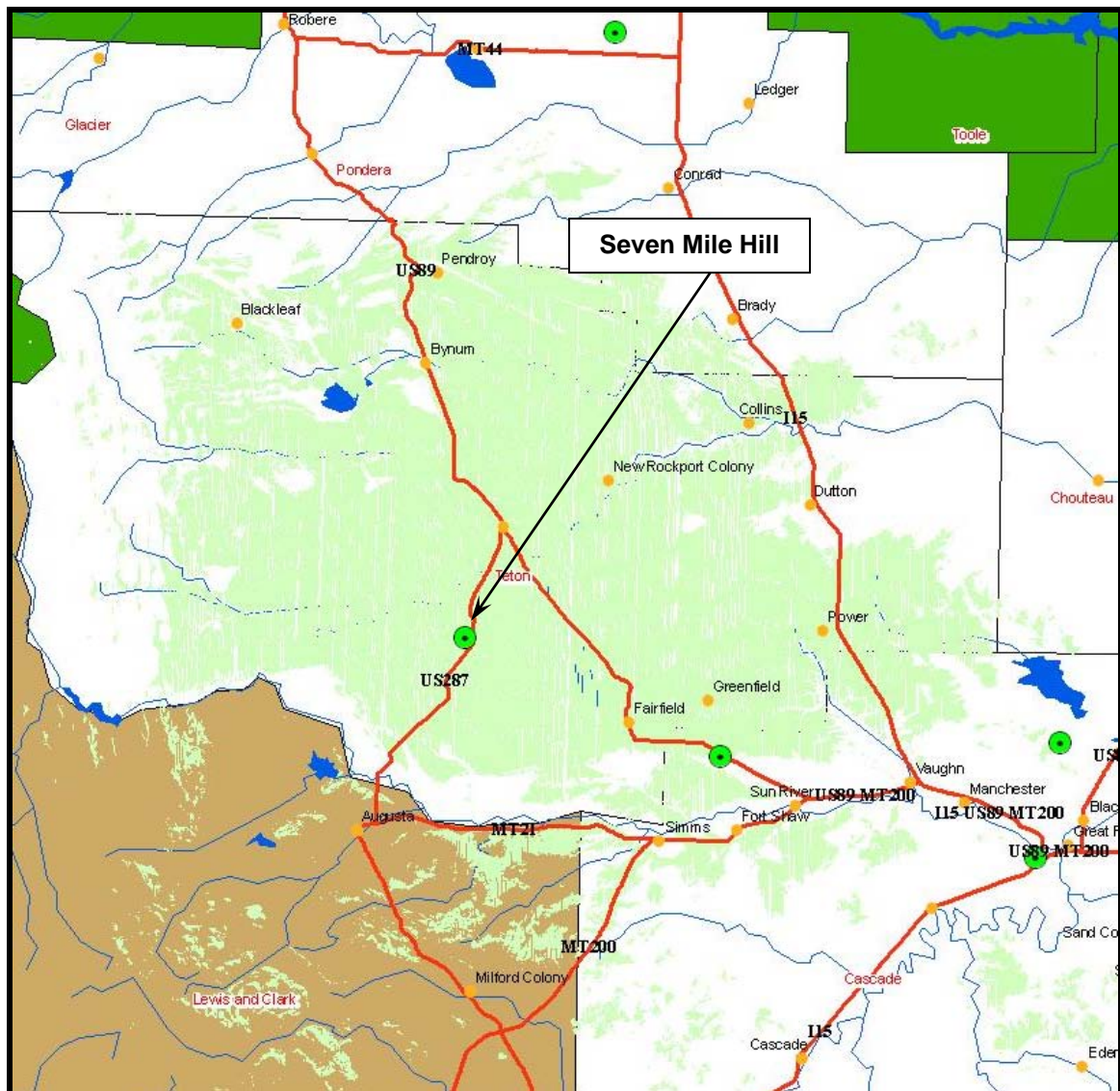


Figure 38 – Coverage Map: Seven Mile Hill

5.4.14 South Moccasin

Site Pictures

No Images Available At This Time

Site Description:

Key site for Fergus County covering Lewistown and eastern Fergus County

Area:

North and just east of Lewistown

Owner:

Details to be gathered in next phase

Elevation:

7073'

Latitude:

47° 10' 43.6"

Longitude:

110° 32' 3.9"

Tower:

Details to be gathered in next phase

Building Type:

Details to be gathered in next phase

Building Size:

Details to be gathered in next phase

List of Users at this site:

- Fergus County Sheriff

Radios at this site:

- Details to be gathered in next phase

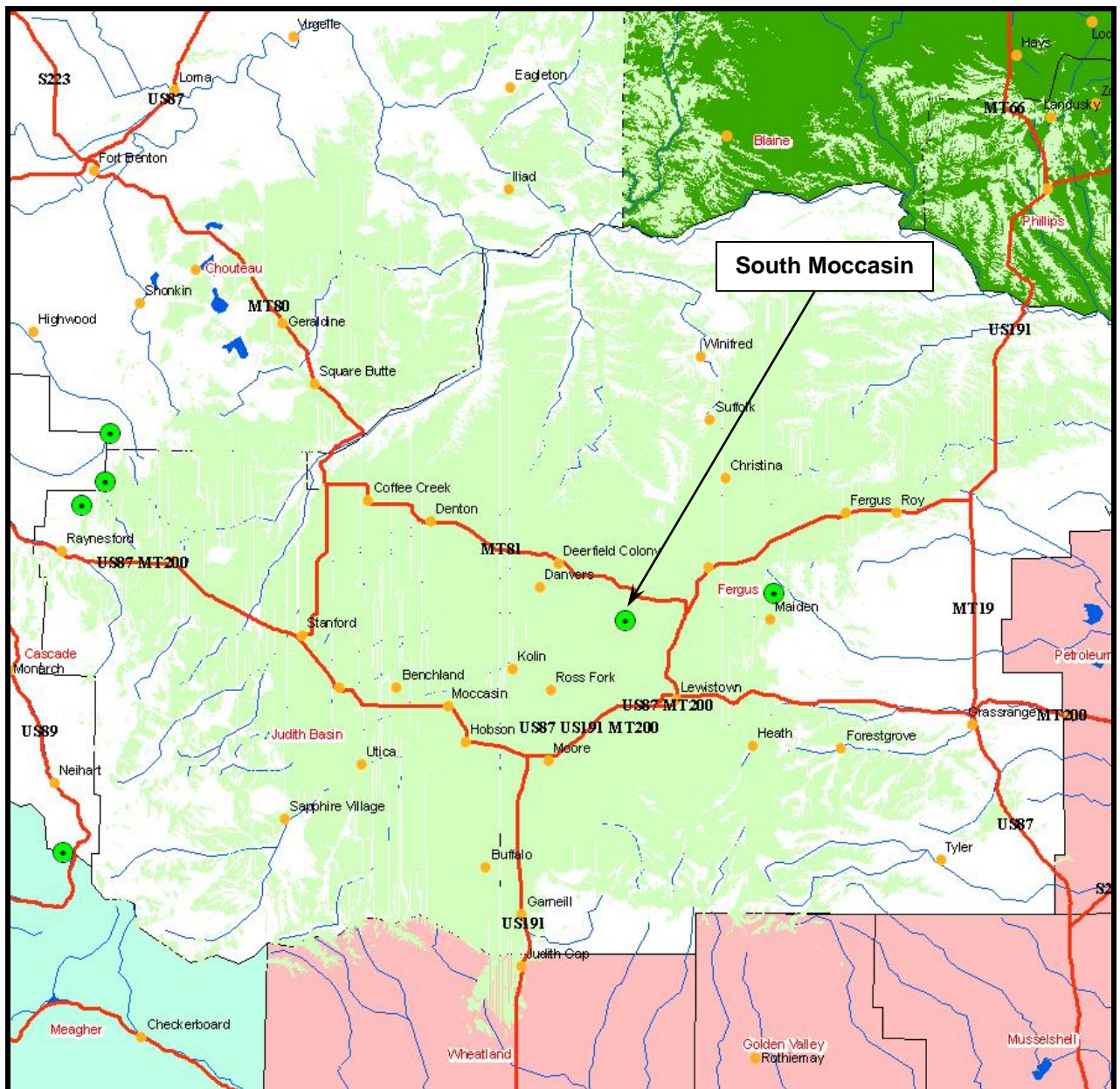


Figure 39 – Coverage Map: South Moccasin

5.4.15 Teton Ridge

Site Pictures

No Images Available At This Time

Site Description:

Eastern Teton County repeater

Area:

Between Dutton and Power

Owner:

Eugene Johnson

Elevation:

4064'

Latitude:

47° 48' 03" N

Longitude:

111° 42' 40" W

Tower:

150' guyed tower

Building Type:

Cinder block, metal roof

Building Size:

Details to be determined in next phase

List of Users at this site:

- Teton County Fire, EMS, Sheriff, Public Works, Softworx Wireless Internet

Radios at this site:

- 154.010 154.400 - Teton County Fire
- 155.055 155.925 - Teton County EMS
- 155.865 158.835 - Teton County Weed District

Subscriber Units

There are still quite a few subscriber units listed in the “unknown” category. It is very possible that there are newer radios that do not need replacing in this category. That will ultimately save money.

Site Surveys

Completing site surveys at the engineering level is beyond the scope of the baseline needs assessment. Sites were surveyed for obvious problems and basic details. Where available, photos of each site are located on the CD that accompanies this report. Site assessment criteria will have to be developed during the implementation phase but would include some generally applicable and logical considerations:

1. Topography as it relates to transmission efficiency
2. Road access as it relates to equipment needed for site upgrade/improvement
3. Electric power requirements for upgraded sites
4. R-56 or other grounding standards
5. Microwave link capability
6. Screening potential of existing vegetation, structures and topographic features
7. Compatibility with adjacent land uses
8. The least number of sites to cover the desired area
9. The greatest amount of coverage, consistent with physical requirements
10. Opportunities to mitigate possible visual impact

Dispatch Centers

Dispatch centers will also require further investigation in regard to radio consoles and base station connectivity to the overall radio system. PSAPs and 911 centers were not part of this scope of work but will need to be integrated into the overall dispatch upgrade plan.

5.11 Contents of CD – Electronic Documents

- Electronic version of this document
- Radio Inventory Spreadsheet
- Infrastructure Preliminary Design Spreadsheet
- Site Surveys
- Motorola Coverage Maps – Images
- Motorola Coverage Maps – GIS Data
- Site Photos
- Meeting Notes
- Completed Questionnaires
- Project Statement of Work Document
- SIEC Interoperable Definition